

NEUROLOGICAL CONTRIBUTIONS

William Alexander Hammond







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BY

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*Fructu, non foliis arborem aestima*

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JAMES
ÆT. 10, HEIGHT 32½ IN.



JOHNNY
ÆT. 18, HEIGHT 33½ IN.



JOE
ÆT. 15, HEIGHT 37½ IN.

ARREST OF DEVELOPMENT.



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THE
NON-ASYLUM TREATMENT OF THE INSANE.*

BY WILLIAM A. HAMMOND, M. D.

PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM IN THE UNIVERSITY OF THE
CITY OF NEW YORK AND IN THE UNIVERSITY OF VERMONT, ETC.

NOTE.—The foot notes contained within brackets, [], have been added since this paper was read before the State Medical Society. They are simply elucidative of the text.

IT is the commonly received opinion among physicians and the public generally that as soon as possible after an individual becomes insane, he or she must be at once placed under the restraint of a lunatic asylum. No matter what the type of mental aberration, no matter what the facilities for receiving care and attention at home, the asylum is regarded as the necessary destination of the one so unfortunate as to be deprived wholly, or in part, of the light of reason. For this state of affairs the medical officers of insane asylums are mainly responsible, for they have very diligently inculcated the idea that they alone, by education, by experience and by general aptitude, are qualified to take the medical superintendence of the unfortunate class of patients in question, and that restraint and separation from friends and acquaintances are measures in themselves which are specially curative in their influence.

It will be among the chief objects of this memoir to show that these views are erroneous; that the medical pro-

* Read by invitation before the Medical Society of the State of New York February 5th, 1879.

fession is, as a body, fully as capable of treating cases of insanity as cases of any other disease, and that in many instances sequestration is not only unnecessary but positively injurious.

It is very certain that the early recognition of insanity is often a point attended with very considerable difficulty, for here the physician requires the full use of his common sense, his powers of discernment and his medical knowledge. And yet it is just here that the asylum physician is almost entirely without experience, and that the services of the general practitioner are most frequently brought into requisition. [*] It is he who has to determine whether the mind, trembling as it were on the border-land, has passed over into the darkness and sorrow of insanity, or only suffers some temporary deprivation of light from functional cause; he has to decide between an attack of passional excitement and one of acute mania; he has to estimate at their full value what may be merely erroneous beliefs or insane delusions. To say, therefore, that merely because he is a general practitioner he is not competent to continue the treatment of a case of insanity, or fitted by mental organization to assume the charge of such a case, is a false view, which interested parties have sedulously kept alive for their own aggrandizement, and is one contrary to the principles of common sense and experience. [†]

[* A physician who had been for many years connected with a very large lunatic asylum informed me that he had never, with all his experience, seen a case of general paralysis of the insane in the very first stage.]

[† It is a well-known fact, but one which is carefully kept in the background, that many superintendents of lunatic asylums had no practical experience with or theoretical knowledge of insanity before being, by social or political influence, placed in charge of some large institution containing hundreds of insane persons. This is the case notably in the States of New York and North Carolina. In the instance of the asylum at Raleigh—I quote from a biographical notice written by the incumbent himself, and contained in the "Physicians and Surgeons of the United States," Philadelphia, 1878, p. 98—it appears that the phenomenal individual in charge had been a lawyer, a teacher, a Superior Court clerk, a physician practicing three years, a captain in the Confederate army, twice a mem-

As further supporting this opinion, we have only to call to mind the fact that some of the most eminent alienists of modern times have never been connected professionally with lunatic asylums. Rush, whose work on the mind can even at the present day be read with interest and profit, was never physician to a lunatic asylum, but yet he did more in his writings to advance the science of insanity than all the combined superintendents of asylums in this country have done since his time. Griessinger, while he lived, the leading authority in psychological medicine, not only in Germany but in the world, was never physician to a lunatic asylum. To be sure he had at one time the charge of an institution for the education of idiots, but I believe it has been decided by the body of insane asylum superintendents that idiocy is not insanity, and in accordance with that dictum Dr. Wilbur, of Syracuse, is ostracised from their communion. And then, in our very midst, we have Clymer, Seguin, Spitzka and Beard in New York, Mitchell in Philadelphia, Miles in Baltimore, Jewell in Chicago, and many others in various parts of the country, assiduously giving attention to the science and art of psychiatry and all unconnected with lunatic asylums.

There is nothing surprisingly difficult, obscure or mysterious about diseases of the brain which can only be learned within the walls of an asylum. Like other morbid condi-

ber of the Legislature, a member of the Constitutional State Convention, an aide-de-camp to the Governor with the rank of colonel, and that then, declining "many offers of distinguished political positions, including that of Lieutenant-Governor," he accepted the office of superintendent of the insane asylum at Raleigh, the duties of which, it is further stated, he performs to the satisfaction of both political parties! This, I admit, is an extreme case; that it is a possible one is disgraceful to all concerned.

In the New York instance the superintendent desired to go to the Legislature, but this idea not being agreeable to the political managers, and there being no other office for him, he was made superintendent of the City Lunatic Asylum on Blackwell's Island, an institution containing over six hundred insane women.]

tions they require to be studied, but they are as easy of recognition and are of as uncomplicated therapeutics, as diseases of the heart and lungs. What would be thought of those who should assert that no physician was competent to treat phthisis, unless he had previously qualified himself by being connected with a hospital for consumption, or of those who would deny the capacity to properly manage a case of cancer to him who had not been attending surgeon to a tumor dispensary? Undoubtedly, if our asylums were properly organized, medical connection with them could scarcely fail to be advantageous both to physicians and patients; and even under the present system, bad as it is, the subordinate medical officers and some superintendents have opportunities for readily acquiring a knowledge of psychological medicine, which would otherwise be more difficult of attainment. But it must be confessed that up to the present time, so far as our own country is concerned, the contributions to the science of the mind in health or disease, from medical officers of asylums have been few, and for the most part of little value. That this is more the fault of the system than of the men, scarcely requires assertion. The current of their lives does not run in the channels of science, and hence aside from the writings of Brigham, Ray and Earle, the rest are hardly up to the level of ordinary medical periodical literature. In general medicine and surgery and in many medical and surgical specialties, hospital physicians and surgeons are not behind their brethren in the importance of their contributions, to the sciences they represent, but in cerebral medicine the most valuable monographs and systematic treatises have come from those who have not been physicians to hospitals for the insane.

It appears, therefore, that with but few exceptions, asylum physicians in this country have not devoted themselves

specially to the scientific study of the very important class of diseases with which their patients are affected. Doubtless experience has taught them much that is valuable, but it is only necessary to visit any large asylum to perceive that the therapeutics run in ruts which routine has cut, and that little or no effort is made to inquire into the normal cerebral organization of each particular patient, the character of his or her intellect, emotions and volitional powers, the existence or non-existence of disease in other parts of the body which may act as an exciting or predisposing cause of the cerebral disorder, etc., etc. For this state of affairs the medical officers are scarcely to blame, for how can the three or four physicians composing the staff of an asylum do more than obtain a very superficial knowledge of the clinical history of their patients, or effect more in the way of medical treatment than to meet indications and emergencies as they arise?

In the matter of detecting feigned cases of insanity, it does not appear that asylum physicians are any more expert than those medical men who have not had the advantage of hospital experience in the management of lunatics. This is no fault of theirs. In the very nature of the affection, insanity is a disease which any intelligent and shrewd person can successfully feign when there is a special object for perpetrating the fraud. We all know, how only a few years ago, a newspaper reporter pretended to be a lunatic, was certified to be one by two respectable physicians, was committed to an asylum by the court, then carried out his imposture successfully for several weeks, and was finally discharged cured, to write a book detailing his experience. Would this be possible with diseases of the heart or lungs, or kidneys?

I feel therefore justified in making the assertion, and I do so with a full sense of its importance, that a general prac-

tioner of good common sense, well grounded in the principles of medicine, with such a knowledge of the human mind and of cerebral physiology and pathology as can be obtained by study, and familiar with all the clinical factors in his patient's history, is more capable of treating successfully a case of insanity than the average asylum physician.

If this opinion is correct, there is obviously nothing to be gained, so far as the medical treatment of an insane person is concerned, by sending him or her to a lunatic asylum.

But if not necessary on the score of strictly medical management, is not sequestration desirable for other reasons intimately connected with the welfare of the patient? On this point I will make a few quotations from acknowledged authorities before proceeding to state my own views.

Maudsley* says, speaking of the system of indiscriminate sequestration—of locking up a person in an asylum simply because he is mad:

“The principle which guides the present practice is, that an insane person, by the simple warrant of his insanity, shall be shut up in an asylum, the exceptions being made of particular cases. This I hold to be an erroneous principle. The true principle to guide our practice should be this, that no one, sane or insane, should ever be entirely deprived of his liberty unless for his own protection or for the protection of society. Therefore, instead of acting on the general principle of confining the insane in asylums and making the particular exceptions, we ought to act upon the general principle of depriving no one of his liberty, and of then making the numerous exceptions which will undoubtedly be necessary in the cases of insane persons as in the cases of criminals. * * *

“If any one says that on admission of these principles

* The Physiology and Pathology of the Mind. London, 1867. p. 424.

the practical result as regards the insane would be very much what it is now, for they would practically embrace so many of them that the exceptions would be few, I question the assertion, and I venture to assert in opposition to it, that there are many chronic and incurably insane persons neither dangerous to themselves nor to others, who are at present confined in asylums, and who might very well be at large. But they are kept in asylums because they have once been put there; because it is sometimes desirable that their existence should not be known to the world; because they cost less there than they would if in private houses; because they are well taken care of there; because it is heedlessly taken for granted that it is no injustice to confine them there so long as they are mad, and for many other like reasons. But the fundamental reason which inspires all these other reasons, and without which they would want firm root, is, that the world has grown to the fashion of thinking that madmen are to be sequestered in asylums, and cannot now, with every desire to be sincere and unbiassed, conceive the possibility of a different state of things. Even those devoted men who labored so well to effect the abolition of restraint within asylums never dreamt of the abolition of the restraint of asylums. * * *

"Another objection to the liberation advocated will be that the insane in private houses will not be so well cared for as they are, nor have any more comfort than they now have in well-conducted asylums. The quarter from which this objection is urged taints it with suspicion. I never heard it put forward but by those who are interested in the continuance of the present state of things. Those who make it appear to fail entirely to appreciate the strength of the passion for liberty which is in the human heart; and, as I feel most earnestly that I should prefer a garret or a cellar

for lodgings, with bread and water only for food, than to be clothed in purple and fine linen and to fare sumptuously every day as a prisoner, I can well believe that all the comforts which the insane person has in his captivity, are but a miserable compensation for his entire loss of liberty: that they are petty things which weigh not at all against the mighty suffering of a life-long imprisonment. I would put it to those who lay stress on the comforts of asylums whether they sufficiently consider the discomforts of them apart from the imprisonment which they are from the nature of the case. Is it not a common thing to hear from an insane person bitter complaints of the associations which he has in the asylum, and of the scenes of which he is an unwilling witness—scenes which cannot fail to occur, notwithstanding the best classification, where all sorts and conditions of madness are congregated together? What again can be considered more afflicting to a man who has any intelligence or sensibility left, than the vulgar tyranny of an ignorant attendant—a tyranny which the best management cannot altogether prevent in a large asylum? And I might go on to enumerate many more of the unpreventable miseries of life in an asylum which, when superintendent of one, forced themselves painfully on my attention, and often made me sick at heart.

“Those who advocate and defend the present asylum system should not overlook these disadvantages; they should not forget that there is one point of view from which they who organize, superintend and act, regard the system, and that there is another point of view from which those who are organized, superintend and suffer, view it.”

No language of mine could be stronger than this. It is emphatic, distinct, and to the point, and coming as it does, from one who stands in the very front rank of psychological

physicians, himself late the superintendent of a large asylum, and whose associations, medical and social, are most intimately connected with the subject, is extremely significant.

Dr. Blandford* says after mentioning former practices, "Now from all asylums patients are sent to the seaside, to the theatre, the picture galleries; each proprietor vies with his fellows in providing recreation and entertainment for his patients, in proving in fact how little they need the restraint of an asylum. There will always be a certain number who cannot be allowed so much liberty, who cannot be taken to the seaside, who cannot even walk beyond the bounds of the asylum grounds, whose life is one incessant struggle to escape by fraud or force, or execute per chance, some insane project fraught with danger to themselves or others. Some then will be whose limited means procure for them greater luxury and enjoyment amongst the numerous boarders of an asylum, than could be afforded were they placed alone in a private family. But there are many with ample means, patients who make the fortunes of asylum proprietors, whose lives would be infinitely happier did they live beyond asylum walls."

Dr. Dickson† says: "As a matter of principle I should strongly recommend that a patient should never be sent to an asylum if such a course can be avoided. There is no law prohibiting the treatment of a patient at home. The lunatic is not a criminal to be put under locks and bonds; and it is only when he disturbs the public peace, or when by cruel or unusual treatment, other people infringing the law as regards him, that authority can interfere in his behalf."

* *Insanity and its Treatment*, etc. Edinburgh, 1871, p. 370.

† *The Science and Practice of Medicine in Relation to Mind*, etc. London, 1874. p. 359.

Dr. C. Pinel* while contending for the general principle that lunatics should be sequestered, admits that the exceptions are many. "Every rule" he says: "has its exceptions and we should at least in the beginning, when the disease is recent and not of grave character, give the patient the opportunity of remaining in his own house. Thus a light degree of maniacal excitement, a restricted monomania, a moderate degree of melancholia, certain kinds of hallucinations and false conceptions not relating to the family, hypochondriacs, subjects of dementia, etc., may properly remain at home."

In treatment at home, he continues, "if the attentions of the relatives are well received, taken at their just value, accepted with gratitude, eagerly desired; it would be inhuman, indiscreet, and not in accordance with sound medical science to deprive him of them. Nothing can replace, nothing equal the tender devotion, the affectionate solicitude of the family. Many times we have been the witness of the inestimable benefit of these moral and physical aids, and it is for us a sacred duty in the absence of the most imperious necessity not to separate the lunatic from them."

Dr. Maudsley, Dr. Blandford, Dr. Dickson and Dr. Pinel are, or have been superintendents of lunatic asylums; the three first are teachers of psychological medicine in prominent London medical schools, and hence their authority to speak intelligently on the subject will not, I presume, be questioned in any quarter.

On the other hand, there are many writers, almost all of them superintendents, who regard sequestration as in itself a curative measure of the first importance, and who, therefore, insist that the first thing to do with a lunatic is to re-

* De l'isolement des aliénés. *Journal de médecine mentale*, t. I, Paris, 1861, p. 80.

move him from the care and association of his friends, and to deprive him of his liberty by placing him under the restraint of an asylum.

Now, what is there in an asylum that is especially curative? We have seen that it is not the medical attendance, and the quotations from the eminent physicians given show that there is nothing in the mere act of sequestration which is otherwise than injurious. Asylums are not curative any more than are other hospitals. They are better for some patients—those who cannot be properly taken care of at home—as our present system is organized, and they are places where lunatics who are dangerous to themselves or others can be kept with some approach to safety.

I say "some approach," for we know from almost daily experience that suicides and homicides of startling character are common enough even within the walls of asylums. [*] But for those who have the comforts of a home and good medical attendance, and for those who are not likely to do harm to themselves or others, they are evils, and the sooner this fact is recognized the better it will be for

[* In the New York City Lunatic Asylum on Ward's Island, within a period of about a year, four homicides have occurred. In one of them a patient was beaten to death by an attendant, in another an attendant was killed by a patient, in the third a patient was thrown off the wharf and drowned by another patient, and in the fourth one lunatic was ordered to give a hot bath to another, not only insane, but paralyzed. After getting him into the bath-tub he turned on the hot water and walked away, leaving the poor wretch to be literally boiled to death; which he was.

In the Minnesota asylum at St. Peter, a patient who refused to eat had his mouth filled with food by a nurse and the mess pushed down into his stomach with the handle of a knife, while another nurse held him down. On one occasion he ran away, yelling that they wanted to kill him. He was caught and laid on a bench. One attendant held his hands and sat across his body; another attendant and a patient helped to hold him; his mouth was plugged to prevent his closing it. The food (soup) was poured in from a pitcher; his breath was heard to "gurgle" as the soup went into his windpipe, and in five minutes he was dead. It would be easy to cite other cases which have occurred within the last few months.]

the patients and the public. I admit that at present they are necessary evils, and perhaps under some form or other they will continue to exist, but that form will, I think, be very different from the one which now prevails.

The patients for whom lunatic asylums are particularly deleterious are those who display mild forms of mental derangement, who are capable of reasoning logically in regard to most of the circumstances presented to their minds, and who are enabled to control themselves to such an extent as to prevent the exhibition of themselves in ridiculous, violent or degrading aspects. Such persons feel very acutely the injustice and disgrace of incarceration. They know they are not dangerous to themselves or others, and the deprivation of their liberty they regard as cruel and uncalled for. The violent rupture of social and family ties is especially injurious to those patients, and the association which they are compelled to have with lunatics far more profoundly affected than themselves cannot but have, as Maudsley says, a highly pernicious influence upon them. [*]

Again, the mere fact that a lunatic, although harmless, and conducting himself in a manner not to outrage the

[* As this paper is passing through the press the following instance of the apparently unwarrantable incarceration of a harmless monomaniac is published. (*New York World*, Feb. 14th, 1879):

“A STRANGE HALLUCINATION.

“NEWBURGH, February 13.—George A. Ormiston was yesterday taken to the Hudson River State Hospital at Poughkeepsie on an order issued by County Judge Brown, a commission to inquire into his sanity having pronounced him a monomaniac. Ormiston believes that all his thoughts are known by others. He imagines he is suffering from a disease of the head by which his thoughts escape him through his nostrils and ears, and that every person can tell what he is thinking about. To prevent this he keeps his nostrils and ears plugged with cotton, but seems to do him no good. When he imagines his thoughts are thus escaping he shuts his eyes and goes through all sorts of facial contortions in order to stop them. He is apparently sane in everything else.”

What business had these people to deprive this man of his liberty on no other grounds than those set forth? On its face the whole proceeding was an outrage. The subject of it had the right to say whether he would go to the asylum or not; but because he had a delusion which concerned no one but himself, he is shut up during the pleasure of those who ought to have protected him, to the detriment of his chances of recovery.]

common decencies of life, may have one or more habits in themselves bad, is not sufficient ground for depriving him of his liberty. A man, for instance, may have an innocent delusion, or be somewhat deficient in intelligence, and he may keep a mistress, or he may occasionally indulge to excess in intoxicating liquors. In these respects he is no worse than hundreds around him; he knows this, and to incarcerate him for these improprieties is surely making use of the asylum in a way to enforce morality, for which, in my opinion, there is no justification. Taking such a person from his mistress is simply to drive him to masturbation, a practice which all the watching and all the mechanical restraint yet devised cannot prevent.

In a very excellent lecture on *The Treatment of Mild cases of Melancholia at Home*, Dr. E. C. Seguin shows how successfully the patients he refers to can be managed without having recourse to an asylum.*

Several years ago I wrote as follows,† and subsequent experience has only tended to confirm the correctness of the views then enunciated.

“It is not always necessary to confine him (the lunatic), in an asylum, but it is necessary in the great majority of cases to place him in such a situation as will secure for him safety, the companionship of sensible people, and the influence and control of some one skilled in the philosophy of the human mind, in the anatomy and physiology of the brain and nervous system and in medical science generally. The great difficulty with asylums is that they contain only insane people, and the prevalent idea among the public—and it is often carried out by the officers of the asylums—is, that

* A series of American Clinical Lectures, Vol. II, No. III, 1876.

† A Treatise on the Diseases of the Nervous System, Sixth edition. New York. 1876, p. 375.

institutions for the insane are simply places in which dangerous or troublesome maniacs are to be kept in safety. My own idea is that the best of all places for a lunatic of any kind, is the family of a physician; of such a one as I have just mentioned. The association of an insane person day after day, year after year, with others similarly affected, with scarcely the least contact with people of sound minds, is certainly in opposition to the first principle of true psychological medicine."[*]

Now what "companionship with sensible people" has the lunatic immured within the walls of an asylum? What "control of some one skilled in the philosophy of the human mind," etc.? Even if the superintendent be such a person, the other duties which under our present system fall to his lot, prevent his having any intimate acquaintance with those under his charge. Only recently an inmate of a lunatic asylum in this State, one who for many years had been, as it subsequently appeared, improperly detained, brought action in the courts for her discharge. She was examined by several competent physicians, and after a patient investigation the jury reported her sane, and the judge ordered her release. Now, though this lady had been,

[* Many persons affected with what is called "reasoning mania," (the *manie raisonnée* of the French), are incarcerated in asylums not because they are dangerous to themselves or others, or to the property of themselves or others, or for the purpose of being cured, but simply because they are troublesome or disagreeable. That they are both of these is certainly true, but it appears to me that the asylum is perverted from its true purpose when it is made the receptacle for such persons. They are never improved by asylum treatment, and they are a nuisance to the other inmates. One poor lady a patient of my own, after her release from an asylum, whither she had been sent for a mild form of melancholia which was aggravated by her confinement, informed me that the great horror of her asylum life was the forced companionship of one of those irrepressible lunatics from whom there was no escape. It is scarcely possible for us to conceive of the degree of mental torture suffered by this unfortunate lady.]

for I think seven years, an inmate of the asylum in question, the superintendent informed one of the medical gentlemen who went to the asylum under an order of the court to examine her, that he did not know there was any such person under his charge as the one named and described.

I am decidedly of the opinion that there are no lunatics no matter how dangerous or troublesome, who would not be better cared for under the family system than within the walls of any lunatic asylum, and it is a great satisfaction to perceive that this system is being gradually developed in this country. There are now many physicians who receive one, two, or perhaps even half a dozen insane persons into their families, and who give their undivided attention to their patients. While the mild cases can be best cared for at home, under certain circumstances, the severe or chronic ones are more advantageously managed by being subjected to the supervision of a physician who takes them into his family. All those who refuse food, who have homicidal or suicidal tendencies, or delusions or morbid impulses, which prompt them to the destruction of property, or to other acts of violence, should be sequestered. If circumstances admit, the best form of sequestration is that which I have mentioned, but for the poor, public asylums will probably always be required, and there will also constantly be others whose friends though pecuniarily able, will not be willing to incur the expense attendant on the family system, and who therefore, will have to be sent to the former institutions. But hospitals of all kinds are to some extent evils. Sir James Pringle pronounced them the great cause of mortality in armies, and in our own day Sir James Simpson and others have pointed out the dangers attendant on them. The mere condition of crowding is bad. If therefore, more asylums are to be built, they should be constructed after a

different system from that which now prevails. An aggregation of small isolated houses, each one not containing more than a half a dozen patients, would be the best plan, not only hygienically, but, by admitting of sharp classification and more thorough supervision, the best in other respects.[*]

And in regard to the medical organization of insane asylums, there can be no good reason why it should differ from that of other hospitals. Each should have its corps of visiting physicians and surgeons and its residents, instead of being placed under the control of one man whose multitudinous duties with legislatures, visitors, farms, and other non-medical matters prevent him giving the proper time and attention to his specific obligations. By this plan to an asylum with six hundred patients, there would be a medical board of at least twenty members,—and the number could be increased as occasion required,—besides a dozen or more of young physicians living in the institution and carrying out the orders of their seniors.

The full details of such an organization might not possibly be carried out in their fullest extent, when asylums are placed as is often the case at a distance from large towns, but in these days of railways running through all parts of the country, even this fact need not be an unsurmountable obstacle. There is probably not one asylum in this state in which it could not be advantageously adopted.

[* The success attendant on the Belgian insane colony at Gheel, and the French one of Fitz James near Paris, is worthy of notice in this connection. The former has been so often described, that it is scarcely necessary to dwell on it here. The latter is in reality a large agricultural establishment, in which all the workers are lunatics. Throughout, there are no guards, no locks or bolts, no cells, no camisoles or other forms of mechanical restraint; all is open and free. Every kind of necessary farming implement is put into the hands of the colonists as they are called. M. Brierre de Boismont, himself the superintendent of an asylum, gives his testimony to the order and quiet that reigned even among the most highly maniacal patients. There were no cries, no indecent gestures, no quitting of work; contentment beamed on every face, and even for those suffering from dementia, it seemed as though liberty had brought back intelligence.]

I have said nothing in this paper relative to the peculiar methods of treatment adopted in too many of our asylums. As a rule, I believe these institutions are well conducted, and that there is a growing tendency in some of them to do away, as far as is at present deemed expedient, with certain forms of mechanical restraint which are contrary to the principles of sound psychological medicine. That some superintendents conduct their institutions upon a better system than others is of course to be expected, and that success is to a great extent due to the character of this system is very evident. For instance, we find that in one asylum—that at Raleigh, North Carolina—the proportion of restored patients to the admissions was 24.3 per cent.; of cures to the whole population only 4.9 per cent., while the deaths run up to 5.6 per cent. [*]

In another—that at Austin, Texas—of about the same size, and certainly not more advantageously situated as regards climate and other sanitary factors, the proportion of recoveries to the admissions reached 40.8 per cent., nearly double the other; of cures to the whole population, 23.5 per cent., nearly five times the rate of the other; while the deaths were but 3.02 per cent., or very little over half the proportion of the North Carolina institution. Certainly these differences mean something as regards bad management in the one case and good management in the other.

But I contend that the great and practically irresponsible power of the superintendents should be divided, and that it

[* These figures cannot be regarded as very astonishing when the fact is brought to mind that the asylum from which they are reported is the one presided over by the superintendent who, as stated (page 2), began as a lawyer, and, occupying various civil and military positions unconnected with medicine, finally "accepted" the position of superintendent of an insane asylum, intercurrently practicing medicine three years. When asylums are thus officered, the results will crop out in the statistics, as in this case.]

is demanding too much of human nature to expect that any one will exhibit only those good qualities of mind and singleness of purpose so essential to the proper management of the unfortunate beings under their charge. These are entitled to receive the best medical treatment which the highest skill can dictate. As it is now, many enter asylums, stay there months or years, and never see the superintendent, except, perhaps, as he gets into his carriage to pay a visit to some private patient.

Under the system I have recommended there would be resident physicians corresponding to the *internes* of other hospitals, and a staff of visiting physicians and surgeons, having the medical charge in rotation of the wards or sections into which the hospital might be divided, and visiting them every day at a fixed hour. Against such a system no valid objection can, I think, be urged.

Correct views in relation to the nature of insanity are of quite recent origin, and are even yet not thoroughly well established. It was not many years since regarded as an affection of the soul, and as such, disgraceful to the unfortunate subject, who was shunned as one morally diseased, and as requiring spiritual instead of bodily treatment. As Dr. Forbes Winslow * remarks, the effect of this was to induce medical men to sleep at the post of danger, and little, if anything, was done to crush the malady in its earlier stages. Medical skill was not therefore brought to bear on the disease till it was too late to adopt rigorous measures for its subjugation. This led to the belief in the incurability of the affection.

“Incipient insanity,” he continues, provided it be not the result of severe physical injury to the head, or has not a

* On the Incubation of Insanity. Transactions of the Medical Society of London, 1846, p. 99.

congenital origin, or is not associated with a strong hereditary predisposition, yields as readily to treatment as incipient inflammation or any other ordinary disease with which we have daily to combat. It is established by the evidence of experienced men that nine cases of insanity out of ten, recover if placed under treatment within three months after the attack.

Dr. Woodward, of the Massachusetts State Hospital, says:

"It is not too much to assume that insanity in its incipient form, unconnected with such complications [apoplexy, palsy, general prostration of strength] is more curable than any other disease of equal severity—more likely to be cured than intermittent fever, pneumonia or rheumatism."

My own experience, and that of many others who have given particular attention to this subject, abundantly supports these views. This, then, is the period, during which the care and attention of the family physician are more efficacious. How much better, therefore, by an early recognition of the malady, to give this care than to wait for the full development of the disease, and then, in a paroxysm of fear and indisposition to assume responsibility, hurry the unfortunate victim off to some lunatic asylum, many of which will not receive him unless with an obligation to stay a certain time (generally, I believe, three months) whether recovery ensues within that period or not.

Again, much must be done—and by none so well as physicians—to educate the people out of their horror and fear of the insane. Let them be made to understand that insanity is simply the manifestation of a diseased brain, to which every one is liable, so far as we know, and that no more disgrace attaches to the affection than to Bright's disease or pneumonia. Now, they are too much disposed to

regard a lunatic as out of the pale of humanity, as a subject for ridicule and harshness which they would not dream of exhibiting toward a sufferer from any disorder with which they are familiar, or which they admit to be bodily in character. Hence this is another cause why, when insanity is recognized, the cry of asylum! is at once raised; so that what, with the erroneous views prevalent in the profession and the clamor of the populace, the insane person goes into captivity, though neither dangerous to himself or others, and able still to appreciate the charms of liberty, still to receive pleasure from the ministrations of those dear to him.

And now, Mr. President and gentlemen, thanking you for your kind attention, I must hasten to bring these desultory remarks to an end. If in what I have said I have succeeded in drawing your attention to a most important matter, my object will have been attained. I have only very imperfectly considered the many interesting points involved, but I think I have said nothing not warranted by the facts, and certainly I have gone no further in my expressions of disapproval of the present system of insane asylum management than many who, from the fact of their connection with such institutions, must be regarded as speaking *par-excellence* by the book. It is not to be expected that the existing current of thought will be arrested on the instant, or the present order of things overturned at once. Great reformations move slowly. But there is a growing and influential class of physicians who think with me in this matter, and they are already acting.

For myself I have in five years, of the large number of insane persons under my charge, sent, so far as I recollect, but one to a public asylum, and he was a general paralytic, who came from Canada to Concord, New Hampshire, to

enter the asylum at that place, and whom I met there. This society can do much towards discussing the various points involved, and presenting the matter clearly before the profession and the public. Millions of dollars are annually spent in the construction of palaces for the insane. If it should appear as the result of investigation that not only are these unnecessary but that the unfortunate individuals destined for them would be better treated in ordinary dwellings than by being incarcerated within the walls of these huge structures, a point of some importance will have been established, for which both patient and taxpayer will have reason to be thankful.

And there is another question which I would submit to this learned body, and that is: How far is the State justified, except in the cases of paupers and criminals, in going into the practice of psychological medicine? What more has it to do with the therapeutics of insanity than with the treatment of any other disease? And yet the great State of New York has established a lunatic asylum and gravely ordered that one exclusive system of medical practice shall prevail therein. This is a gross and standing insult to science, and one against which this representative association should energetically protest. There has been no remonstrance from any other quarter, but it seems to me that the law providing that the homœopathic system of medical practice shall alone be employed in the asylum at Middletown is a matter of social economy worthy only of the dark ages, and worse, to my mind, than providing by law for the celebration of the offices of religion, for lunatics, according to the tenets of some one sect to the exclusion of all the others. No matter what may be the belief of a patient in regard to homœopathy, if he goes to Middletown he must be treated according to this system. We have no establish-

ed church in the State of New York, but she alone of all the sovereignties of the world has an established system of medical practice to which any one of us may, at some time or other of his life, be required to conform. The State has nothing to do with systems of medical practice, and the school that has to have its therapeutics enforced by law disgraces itself in the act. Truth requires no such support.

Mr. President and gentlemen, as I bring this address to a close, an invitation to be present and to speak at a meeting in Boston reaches me. The call is headed "Protection for the Insane," and it is signed by the honored names of Bowditch, Humphreys Storer, Minot and Shattuck in our own profession, and by those of Longfellow, Whittier, Everett Hale, Phillips Brooks, and others as eminent among the laity. Is it not the place of the medical profession to take the lead in this matter, and by so forming and guiding public opinion bring about those results which in some way or other are sure to come?

NOTE.—Since this paper has been put in type a joint committee of the North Carolina Legislature has reported that :

"They feel bound to declare it as their conviction that the Asylum has not been managed with that care and economy which the State had a right to expect. They do not hesitate to express the opinion that the judicious management of his own affairs by a prudent business man, applied to this institution would have saved thousands of dollars to the State. Unquestionably there has been loose management and waste of money. This has been partly owing to the defects of the present law. Partly to the fact that the superintendent, the matron, the steward, and the engineer all have been in the habit of making purchases."

The Committee then goes on to declare that the superintendent "has no well developed idea of economy," and therefore being of the opinion "that it is necessary to re-organize and turn over a new leaf," a bill is reported legislating him out of office.

It is to be hoped the bill will pass, and that the State will be thus rid of an Insane Asylum Superintendent, whose scientific qualifications are no better developed than his financial and economical ideas.

A CLINICAL LECTURE ON ARREST OF DEVELOPMENT.*

By WILLIAM A. HAMMOND, M. D., ETC.

GENTLEMEN—I am fortunate in being able to begin the spring course of lectures on diseases of the mind and nervous system, by presenting to you the three remarkable looking individuals whom you see before you. I do not recall, in the whole course of my experience as a physician and teacher, such another group of imbecile dwarfs, born of one mother, and presumably the offspring of one father, as that which you now have the opportunity of examining. And our astonishment is not lessened when we consider that there are six other children, of the same parents, who are of full size and of good mental development.†

The father died a year ago. He was at first a strong, healthy man, but was nevertheless subject to repeated hemorrhages from the lungs. Eventually he became thin, had a severe cough; consulted my colleague, Prof. Loomis, who diagnosticated tubercular disease, and of this he died. He occasionally became intoxicated, but was not, as his wife says, a steady drinker. Sometimes he would remain more or less drunk for a week or two, and then getting

* Delivered at the University of the City of New York, March 13th, 1879.

† The family history was obtained by Dr. Morton; the measurements a year ago by Mr. Græme M. Hammond, and recently by Dr. Morton.

sober, would stay so for a considerable period. She also says that he was not a good eater, and frequently vomited his meals. He does not appear to have been syphilitic, though there is some doubt perhaps on this point. He had frequent boils.

The mother, as you can see for yourselves, is a healthy woman, and she declares that she has scarcely known a day's illness in all her life. She has never had any cutaneous eruption, or any other manifestation of syphilis, so far as can be ascertained.

On both sides it would seem from careful inquiries that the ancestors, so far as known, have been healthy people. His family were, however, possessed of very violent tempers, and subject to fits of fearful rage. No insanity or epilepsy is known to have existed on either side, and there is no blood relationship between the parents.

Nine children were born to them, two being twins, and the mother states that each of these latter had two teeth at birth. The first is a grown man, being about 22 years old, and is in good health. The second is also of adult age, in good health, and well formed. The third died of whooping cough when twelve months old, but was well formed, and as intelligent as other children of his age. Then came the twins; next Johnny, the eldest of these three, then Joe, next eldest, then Mary, who is, as you see, a full grown, healthy, intelligent girl, and then James, the youngest of the three idiotic dwarfs.

The mother states, that while she was pregnant with all her children, she used to worry a great deal over the dissipation of her husband, and never more than while pregnant with Mary, the child born between Joe and James.

She also says that when pregnant with Johnny, the first of the dwarfs, she lived opposite to a French girl, who was

very short, fat and "old fashioned looking," and that she saw this girl every morning as she looked out of her front window.

She declares that all the dwarfs were splendid children up to three years of age, and well formed, but that each as he attained that period stopped growing. What she says in regard to their intelligence at that time must be taken with a good deal of allowance. It is quite certain that their minds were not more developed then, than they are now, and neither of them has the mental activity of a child three years old.

The teeth were very slow in making their appearance, and were defective and bad. Johnny, the eldest, is just entering on his second dentition, and Joe and James still have their teeth.

Now let me ask your attention to each one of these remarkable specimens of humanity separately.

Johnny is now nearly 18 years of age, and is, as you perceive, of very idiotic appearance. His great delight seems to be to sit still and gaze at vacancy, and this he does for hours at a time. When he plays, it is as a child of two or three years old would amuse himself. He can say a few words expressive of his animal wants, but these are so indistinctly uttered as to be understood with difficulty. He did not begin to talk till he was four years old. His smile is scarcely "child-like and bland;" it is extremely imbecile in character. It has been found impossible to teach him his letters, and although the eldest, he knows less than either of the others. He knows his name, for when I call him he turns his head slowly in the direction of the sound, looks at me for a moment with a half inquiring, half scared expression, and then very slowly and deliberately turns his head back again, and as often as I call him he repeats the

same movements, and looks at me with the same expression. In all of which there is a good deal of pure automatism, and not as much reason as there is in the conduct of a dog under like circumstances. I have tested him this way twenty times, and no matter how often I call him there is not the least variation in the character or extent of his movements.

His mother says however that he is very obstinate in his notions, and that he adheres with great pertinacity to the ways he has acquired. Evidently he is not progressive. He gets little information from the outside world, and what he does obtain is solely such as concerns his feeling of *bien être* as he understands it. His greatest delight consists apparently in being let alone.

His eyesight, hearing, and other senses so far as can be determined are of fair power. There is perhaps some cutaneous anæsthesia which extends to the mucous membranes. He is slow to respond to irritations of the skin, which would ordinarily be regarded as painful, and his mouth gets full of mucus and saliva, owing to the fact that he is not sensitive of the fact, and hence does not swallow as often as he should. There is deficient reflex excitability.

He is also subject to attacks of vomiting. There is at these times a good deal of nausea. He makes repeated and severe efforts to throw up, and it seems as if each moment he would go into a spasm of some kind.

He has never had measles, scarlet fever, or any other of the diseases of children.

A year ago I had some measurements taken by my son, Mr. Græme Hammond, of this and the other boys, and the measurements were again made on the 14th of February last by Dr. Morton. In both cases great care was taken to ensure accuracy. The following table gives the results of both determinations in inches :

JOHNNY.

	HEIGHT.	CIRCUMFERENCE OF HEAD.	CIRCUMFERENCE OF ABDOMEN.	CIRCUMFERENCE OF CHEST.
1878,	33 $\frac{1}{4}$ inches.	20 $\frac{1}{4}$ inches.	25 $\frac{1}{2}$ inches.	24 $\frac{1}{2}$ inches.
1879,	33 $\frac{1}{4}$ inches.	21 inches.	22 inches.	24 $\frac{1}{2}$ inches.

It is seen from this table that his height remains the same; that the head is a quarter of an inch greater in circumference than it was a year ago. That the abdomen has lessened in size three and a half inches; and that the chest is exactly the same as it was at the first measurement.

As he stands now naked before you, you observe that there is a small umbilical hernia—a condition which also exists in each of the others—and that the generative apparatus is about as fully developed as in a boy of five or six years old. There is an entire absence of hair on the pubis.

Johnny objects to wearing a coat and trousers, and insists in being dressed in a frock.

Joe is at present fifteen years old. He is, although of very feeble mind, decidedly more intelligent than his elder brother. He goes to school and his mother says he learns a little. She says his memory is good. When I call him by name he smiles and turns his head towards me, and his expression indicates the possession of a higher degree of mentality than the stolid look which the face of his elder brother constantly has. He is more cheerful and plays with more animation than Johnny. His speech is not distinct and his vocabulary is quite limited, being restricted almost entirely to his likes and dislikes, and his animal wants. He began to talk at three years of age, and at five spoke as well as he does now.

There is perceptibly less automatism in Joe's movements

than in Johnny's. It is easier to engage his attention, and his desires are manifested with more eagerness. His plays are of a higher order, and his mother says he exhibits a decided talent for mimicing, taking off the doctor, the pedlar, and others who come in his way with much striking effect. I have not, however, been able to get any exhibitions of his genius in this direction, though when I ask him about the matter he smiles knowingly, as if conscious of his powers. The following table shows his stature etc. at the times previously mentioned.

JOE.

	HEIGHT.	CIRCUMFERENCE OF HEAD.	CIRCUMFERENCE OF ABDOMEN.	CIRCUMFERENCE OF CHEST.
1878,	37 $\frac{1}{4}$ inches.	21 $\frac{1}{2}$ inches.	23 $\frac{1}{2}$ inches.	23 inches.
1879,	37 $\frac{1}{4}$ inches.	20 $\frac{3}{4}$ inches.	23 $\frac{1}{2}$ inches.	23 inches.

These differences are quite unimportant. You perceive, however, that though three years younger than Johnny, he is four inches taller. Naked he is seen to have no hair on the pubis, and to possess generative organs of no greater degree of development than those of a boy four or five years old. He has also an umbilical hernia, though it is smaller than that of his elder brother.

Joe is more symmetrically formed than Johnny, and in consequence of his greater height, his abdomen does not appear to be so disproportionately prominent. His head is of about the same size but is better formed. Altogether he is of a higher grade mentally and physically than the elder brother.

James is ten years old, and is said to be of a happy disposition. He is the most intelligent of the group. Talks more, plays more, is more active in his habits than either

of the others. His articulation is more distinct, his expression more intellectual. He is the only one, however, who exhibits any tendency to rachitism, for, as you see, he is very bowlegged, and there is quite a decided degree of lordosis. His measurements are given in the following table:

JAMES.

	HEIGHT.	CIRCUMFERENCE OF HEAD.	CIRCUMFERENCE OF ABDOMEN.	CIRCUMFERENCE OF CHEST.
1878,	32 inches.	20½ inches.	24 inches.	23 inches.
1879,	32½ inches.	21 inches.	22½ inches.	22 inches.

He is the only one of the three who, during the last year, has grown any in height. He has probably nearly reached the extreme limit of altitude to which he will attain.

Now for purposes of more ready comparison, let us arrange all these measurements into one table, as follows :

NAME.	HEIGHT.	HEAD.	ABDOMEN.	CHEST.
Johnny, 1878,	33½ inches.	20½ inches.	25½ inches.	24½ inches.
" 1879,	33½ inches.	21 inches.	22 inches.	24½ inches.
Joe, 1878,	37½ inches.	21½ inches.	23½ inches.	23 inches.
" 1879,	37½ inches.	20½ inches.	23½ inches.	23 inches.
James, 1878,	32 inches.	20½ inches.	24 inches.	23 inches.
" 1879,	32½ inches.	21 inches.	22½ inches.	22 inches.

Examining this table, we find that James only, has grown in height during the past year, but that the increase is only a half an inch.

The circumference of the head in each case has slightly increased, except in that of Joe, there being in him a diminution of half an inch.

All have undergone a reduction in the size of the abdomen, and in the case of Johnny this amounts to three and a half inches of the circumference.

The circumference of the chest remains the same in Johnny and Joe, but is lessened one inch in James.

There are one or two other points in the anatomical configuration of these imbeciles to which I desire to draw your attention, because they are of such a character as to constitute radical differences between them and individuals of normal structure. In these latter, if the distance between the root of the nose and the occipital protuberance be measured by means of a string carried over the head, it will be found to be longer than the distance measured by a line drawn over the top of the head, from one meatus auditorius to the other. It was remarked by Dr. Trombotto,* who several years ago was appointed by the Sardinian government to inquire into the whole subject of crétinism, that in the head of the crétin the very reverse of this occurs; that the skull is flattened antero-posteriorly to such an extent that the bi-auricular diameter is greater than the naso-occipital.

Now let us see what are the facts in these three imbecile dwarfs. With a tape measure I find that in Johnny the distance from the root of the nose to the occipital protuberance is $12\frac{1}{4}$ inches, and from one meatus auditorius to the other $13\frac{1}{2}$ inches. The latter is therefore $1\frac{1}{4}$ inches longer than the former. Similar measurements made on the other two give like results, although the difference is not so great in either.

Dr. Trombotto found that the difference in the crétins measured by him was an average of four centimetres, or about an inch and a half, and we see that the difference in these individuals is nearly as much. They all therefore exhibit a flattening of the skull in its antero-posterior diameter.

* M. Ferrus in *Mémoire sur le goitre et le crétinisme. Bulletin de l'Académie de Médecine* t., XVI., p. 208.

Looking at them, you cannot fail to perceive how large the face is proportionately to the part of the cranium containing the brain. Their heads are not small, and when taken in comparison with the size of their bodies, are seen to be above the average size, but if we simply regard the brain case, we see that this is comparatively small, and that the size of the head is made up to a great extent by the part of the skull in which the face is situated.

Another point of interest is presented by all three of these dwarfs, and that is the Mongolian-like faces they possess, and which is also, as Ferrus states, and as I have myself witnessed, a common feature with the *crétins* of the Alps and Pyrenees. Johnny exhibits this type in a marked degree, and many to whom I have shown his photograph have at once asked if he was not Japanese. The eyes are small, and set angularly in their sockets. The cheek bones are high, and even the complexion is similar to that of the Tartar race.

M. Ferrus* states that in the Bicêtre he has noticed a peculiarity of the buccal cavity common in idiots. It consists in narrowness and elevation of the palatine arch. A similar condition has been noticed by him in *crétins*, but generally with these latter the arch of the palate is flattened to an extreme degree.

All three of these individuals have the same peculiarity of a narrow and high palatine arch.

So much for the description of these abnormal specimens of humanity. Let us in the next place consider the general features of that form of mental and physical arrest of development to which they belong.

A glance suffices to show that they are imbecile. There

* Op. cit., p. 210.

are two grand divisions of imbecility, idiocy and dementia, and as these are often confounded one with the other, it will be well for me to enter at some little length into the subject of their distinction. Clear ideas relative to the meaning of words, is nowhere more necessary than in the descriptions of normal and pathological psychology.

Idiocy is that condition of mental deficiency in which there are original defects, either of actual structure or of the tendency to further development which all normal brains possess. The phenomena indicative of this state may exhibit themselves at any time after birth, and are usually apparent as soon as the period at which the infant should evince some signs of intelligence, is reached.

Dementia is that condition in which there are no original defects of structure, or of disposition to arrest of development in the brain, but in which the mind being of normal power, becomes weakened through the supervention of disease in this organ.

It is obvious, therefore, that it is with idiocy we have to deal in the cases before us, for the mental state in which these individuals are, is due to arrest of development in that organ from which the mind comes.

Idiocy is of different degrees, from the most complete abolition of all intelligence to the slightest manifestation of feeble-mindedness.

In the highest stage of idiocy the subjects are to all intents and purposes simple automata; they are incapable of reasoning, and do not even possess the instincts which tend to self-preservation. Their existence is purely vegetative; indeed, they are lower than vegetables, so far as mentality is concerned, for even these possess the instincts which preside over and determine towards the preservation of the individual and the species. Idiots of this degree are de-

void of sensations, they neither hunger nor thirst; neither do they feel pain nor experience pleasure, mental or physical. For them to eat, food must be put into the mouth; they are therefore only capable of reflex excitability. Though the eyes may be opened, they do not see, for the motion of striking them may be made, and there are neither efforts to avoid the blow nor even do the eyelids wink. Georget* says they require to be taken care of just as we take care of the vegetables we cultivate.

In the second variety of idiocy, though there is an evident lack of reason, there are very decided instinctive determinations. The subjects are not markedly deficient in sensibility; they see, hear, taste and smell, and are capable of experiencing pain, and to a certain extent of avoiding the sources of unpleasant sensations. Pleasant sights and sounds attract them, and they turn the head to the points from which they come. They are very much like a pigeon from which the cerebrum has been removed, though with more activity and with somewhat more appreciation of the nature of the impressions made on the sensory organs.

With idiots of this grade instinct takes the place of reason, and hence they are capable of acting to the extent necessary to the preservation of life, so far as instinct exerts an influence in that direction. They may sometimes therefore, as Dubois remarks, go in search of food, but they are incapable of work requiring any degree of systematic or sustained effort. They either remain seated or squatting on their haunches all day, or else they walk about without derermination of any kind.

In the third class of idiots are placed those whose intellectual powers are developed up to a certain point. They

* Nouvelles inductions philosophiques appliquées à l'étude de l'idiotisme et de la demence. *Mémoires de l'Académie de Médecine*, 1836, p. 560.

are capable of forming ideas, although to a very limited extent; but in what they do, there is a marked degree of automatism. They know something of the value of money, are aware of the fact that there is such a thing as property, and are capable of being taught a few simple things by patient and long continued instruction. The sexual instinct is generally present and they often masturbate to excess. They are able to speak, though imperfectly, and their vocabulary is limited to a few words expressive of their wants, their sorrows or their pains, and to those designating the familiar objects by which they are surrounded. The forms of speech employed are of the simplest kind, and often their utterances amount to incoherence.

In addition to these purely mental phenomena of idiocy, there are often present some other indications of defective nervous organization, such as paralysis, spasm, tonic contractions, muscular atrophy, etc.

But there are some peculiar forms of idiocy due to special causes, and there is one generally supposed to be of endemic origin, to which I specially wish to draw your attention, and that is crétinism.

This very remarkable condition is found in its highest state of development in the valleys of the Alps and Pyrenees, in France, Switzerland and Italy, though by no means confined to these localities. Very elaborate studies have been made of crétinism, by Baillarger,* Ferrus,† Morcl,‡ and many others, and several years ago the Sardinian government appointed a commission of eminent

* De l'arrêt de développement consécutif comme signe caractéristique de crétinisme.—*Mém. Académie des Sciences*, 1851.

† Op. cit.

‡ Lettres sur le goitre et le crétinisme.—*Ann. Méd. Psychol.*, t. III, 1844, and *Traité des dégénérescences phys. intellec. et moral de l'homme*, Paris, 1857.

physicians to investigate the subject in all its relations of etiology, pathology, and treatment. Similar commissions have also been appointed by the French and Austrian governments.

Three forms of crétinism are generally described by authors, the brothers Wenzel,* being the first to define these degrees with distinctness. They are designated and described as follows:

1. *Crétins*.—Complete intellectual torpor; instincts almost nothing; deaf-muteness; physical conformation defective; height less than forty inches; inaptitude for reproduction.

2. *Semi-crétins*.—Dullness of intelligence; physiognomy without expression; instincts active; voice, hoarse, guttural, stammering; articulation of words difficult, and accompanied by exaggerated gestures; bodily deformities less marked; height below the average; capability of reproduction.

3. *Crétinous individuals*.—More or less well pronounced weakness of intelligence; deficiency of judgment; inaptitude for receiving instruction; indifference to passing events; difficulty of articulation; stammering; special type of physiognomy; exhibiting in a mitigated form the deformities of the complete crétin.†

All authors agree in the assertion, that the short figure of the crétin is one of the most characteristic features of the condition. Lunier declares that all pretended crétins of full size are only ordinary idiots living in regions where crétinism is endemic. The height of the complete crétin never exceeds a metre—equal to about 39.4 inches—while that of the semi-crétin rarely reaches 1.50 metres, or about

* Ueber den cretinismus, Wien, 1802.

† See also article by Lunier, *Crétin et Crétinisme* in *Nouveau dictionnaire de médecine et de chirurgie pratiques*, Paris, 1867, t. X.

4 feet, 11 inches. The Mongolian cast of countenance is another marked feature.

But as Baillarger remarked in an oral communication to Lunier, no one point is so entirely diagnostic of crétinism as the disproportion—the absence of symmetry, which exists in the various parts of the body, and the complete want of harmony which prevails between the members and the trunk; and these distinctions are present, though in a less degree, in the semi-crétins, and in those who are embraced under the head of crétinous.

Now compare these three individuals with these four engravings, (plate XI) of crétins, which I show you from Morel's Atlas, and I think you will agree with me that the resemblance is very striking. There are here the Mongolian faces, the short bodies, the protuberant bellies, the prominent navels, the absence of all signs of puberty, the broad skulls, the persistence of the first dentition, the low degree of intelligence. Mary P. is 13 years old, and her height is 820 *millimetres* (about 31.2 inches). Bt. is 18 years old, and her height is 977 *millimetres* (about 39 inches). N. is nearly 18 years old, and his height is 975 *millimetres*, or about 39.5 inches; and Am. is 21 years old, and he is 990 *millimetres*, or a little over 39 inches. The average height of these New York specimens is therefore considerably less than that of their prototypes from the Pyrenees; their figures are very decidedly less symmetrical, their expressions less intelligent, and their general characteristics mental or physical, below those of undoubted semi-crétins. Indeed, in no essential respect do they differ from many whom I have seen in the valleys of the Alps and Pyrenees.

But does crétinism exist in New York? I do not see why it should not. We do not know with any degree of certainty what its causes are, and we may safely assume

that if deficient sun-light, noxious air, impure water, bad food, unsanitary habitations, and the thousand other factors of mental and physical deterioration are capable of causing crétinism, we ought to have crétins right in our very midst. A New York tenement house is assuredly a worse place in every respect to rear children in, than any valley in the Pyrenees or Alps.

Among the agents capable of inducing crétinism Ferrus* ranks the insalubrity of habitations, the bad quality of the water, defective alimentation, the abuse of spirituous liquors, cohabitation during intoxication, and he shows that cases are often met with in which neither the subjects nor the parents had ever lived in mountainous regions. He recognizes the existence of a "sporadic crétinism," in which, while the characteristics are not so hideous as in the endemic variety, they are yet nevertheless very evident. He describes† in detail the case of one Josephine L., whom he observed in the Salpêtrière, and who was born of healthy parents at Charonne, near Paris, among a population entirely exempt from crétinism. This woman was twenty-six years old, low in stature, with oblique eyes, and the other features of crétinism physical and mental. Subsequently he ascertained that this case of sporadic crétinism was not an isolated one in the family, for that Josephine had a brother and a sister who were like her in bodily and mental development. In all, there were eleven children; three died when young, and of the eight living, all were healthy and well formed but these three. As we have seen, of the nine children born to the mother of John, Joe and James Murray, all were of normal development but these three.

But there is one possible cause of the degradation exhibited in the subjects before us, to which more than a pass-

* Op. cit., p. 218.

† Op. cit., p. 259.

ing allusion should be made, and that is the admitted habits of intoxication to which the father was subject. It is stated that he was not a steady drinker, but that he was accustomed to get drunk periodically, and to stay in that condition for a week or more at a time. Now it has been affirmed by several authorities, that if the father be intoxicated at the time of the intercourse which leads to a conception, the child born of that conception is liable to be idiotic. It is of course difficult to get at any exact data, as the mother of these children not having had her attention directed to the subject at the time, is unable to give any definite information on the point, other than to the effect, that her husband *may* have been intoxicated when they were conceived. Besides, even if the matter of intoxication should be established, we cannot give it any more weight than that of being a possible cause, for it must certainly be true that many children, of good mental and physical development are conceived, the fathers having been in a beastly state of drunkenness at the time of intercourse. There is probably not a person present who does not know of men who are never sober, and yet who have well formed and intelligent children.

I am afraid therefore, that the cause or causes of the frightful misfortune which these children have suffered, cannot in the present state of our knowledge, be more than surmised. Some light might be thrown upon the subject if we had full family histories of the parents; and in the absence of these we can only ascribe it to the unfavorable influences under which they were born, and the bad sanitary factors, to the action of which they and their parents were exposed. But why these three should exhibit the effects of such deteriorating powers, and the other six children be in good mental and physical health, is a matter the elucidation

of which is apparently beyond our reach, and the most remarkable feature connected with it, is the fact, that a girl born between Joseph and James is remarkably intelligent, is well formed and possessed of that treasure, which will perhaps serve her well hereafter, a pretty face.

These children were first brought to me for the purpose of being treated medically with a view to curing them. Of course there is nothing to be done for them in that way. Indeed, there is not even an excuse for circumcising them, and having in mind some recent performances at the City Asylum for Idiots, on Randall's Island, it will be well for the mother to keep a sharp watch over them, lest some enthusiastic surgeon, with more theory than fact to guide him, snip off their prepuces before she can say "Jack Robinson." Worse things than that have been done in the way of circumcision.

Patient instruction might lead to good results so far as their mental development is concerned. Joe has already made a little progress, and he and James could probably be taught to read. The best thing to do with them would be to send them to the care of my friend, Dr. Wilbur, at Syracuse; but the mother informs me that she could not bear the idea of parting with them, and the expense would probably stand in the way.

MYSOPHOBIA.*

BY WILLIAM A. HAMMOND, M. D.

UNDER the name of Mysophobia (*Μύσος, defilement, pollution, contamination, and Φόβος, fear*), I propose to describe a form of mental derangement of which several cases have come under my charge, and which I think has not received that attention from psychiatric physicians which its importance deserves. As the name I have given it implies, it is characterized by a morbid, overpowering fear of defilement or contamination.

Under the designation of *La folie du doute (avec délire du toucher)* M. Le Grand du Saulle† has described an affection which has some marked relations with that which I now bring to the notice of the Society, and cases in which this fear of contamination was a prominent feature, have been reported by other authors; but no one previous to this time has, so far as I know, called special attention to the remarkable phenomenon, which I think, particularly characterizes the disorder, which is in fact, the essential symptom, and which ought I conceive, to determine its nomenclature. The instances which have come under my observation were not, with one exception, marked by any feeling of doubt in the minds of the subject, or necessarily

* Read before the New York Neurological Society, April 7th, 1879.

† *La folie du doute (avec délire du toucher)* Paris, 1875.

with derangement of the sense of touch, although, as in the cases cited by Le Grand du Saulle, there was more or less implication of this sense.

In all, ten cases constitute the basis of my experience with this form of mental disorder, two of which are now under my charge, one as a private patient, the other at my clinique at the University Medical College. Of the first seven cases my notes are not very complete. I was not particularly impressed with the fact of the distinctive character of the affection, though in all I find it stated that the subjects had delusions in regard to pollution, and were constantly washing the hands in order to remove taints, which it was conceived, had been obtained by contact with various objects. It was not till the eighth case was observed, that I made thorough study of the existing phenomena, and recorded fully the symptoms that came under notice. I shall therefore limit my detailed descriptions to these last three cases, and then, after a few general remarks relative to the chief characteristics, pass to the consideration of the means which I have found most efficacious in the treatment.

CASE VIII.—M. G., a lady thirty years of age, and a widow for three years, consulted me February 20th, 1877, for what was considered to be incipient insanity, and an affection in all probability, requiring, it was feared, incarceration in a lunatic asylum. The patient was quiet and orderly in her demeanor, and so far as her friends accounts went, entirely sane, except on the one point of fear of contamination, which was exhibited by mental distress, and the practice of repeatedly washing her hands without there being obvious cause for so doing. She was perfectly coherent in regard to her clinical history, and I obtained from her the following account, which I transcribe in her own language.

"I was, about six months ago, reading a newspaper one evening, in which I came across an account of a man, who it was believed, had contracted small-pox from handling bank-notes, which had been a short time previously in the possession of a person suffering from that disease. The circumstance made a deep impression on my mind, and as I had only a few moments before counted quite a number of notes, the idea struck me that perhaps they had been handled by some person with a contagious disease of some kind or other. I had washed my hands just after counting these notes, but thinking that I had not possibly removed all the taint, I immediately washed them again. I went to bed feeling quite uncomfortable, and the next morning paid more than usual attention to the washing of my hands. I then recollected that I had placed the notes in a drawer of my dressing table, in contact with linen which I had proposed putting on that day. I changed my intention however, and selected some from another drawer instead, sending the other to the laundry. I then put on a pair of gloves, took out the notes, placed them in a letter-envelope, and had the drawer thoroughly washed with soap and water.

"Reflection upon the matter brought to mind the fact that, after counting the notes, I had touched various things before washing my hands. I could not recall what these were, and hence I was made very uncomfortable, for the idea occurred to me that I must have touched some of these things after washing my hands, and that, therefore, I was still in danger. The very dress that I wore then, was the same that I had on now, and my hands had been more or less in contact with it all the morning. I felt myself accordingly forced to wash my hands, to take off the dress, and again to wash my hands.

"From that, I went on from one thing to another. There was no end to the series. I washed everything I was in the habit of touching, and then washed my hands. Even the water was a medium for pollution. For no matter how thoroughly I wiped my hands after washing in it, a portion still remained, and this had to be washed off, and then again the hands washed. There was no end to it. The soap became associated in my mind with contamination, and I never used the same piece twice.

"Now, I can touch nothing without feeling irresistibly impelled to wash my hands afterwards. If I am prevented doing so, I experience the most horrible sense of fear. I am always looking at my hands to ascertain if I can see anything on them, and I have a lens which I use to aid my eyesight. I have no particular apprehension of contracting small-pox, or any other disease that I can specify. It is an overpowering feeling that I shall be defiled in some mysterious way, that presses on me with a force that I cannot resist. As to shaking hands with any person, nothing would persuade me to do so, unless I had on gloves at the time.

"And lately, even gloves do not seem to afford me entire protection, I know they are porous, and that, therefore, the subtle influence, whatever it may be, is capable of passing through them to my hands."

On my asking this lady whether she really believed in the theory she had constructed, she answered that at times she was convinced that she was in error, but only for a short period, as the original ideas returned in full force: that when reasoned with in regard to the absurdity of her notions, she was persuaded for the moment that she was wrong, but as soon as she was left to herself, she was back in the old train of thought.

The expression of the patient was one of anxiety. As

she sat talking to me she was continually rubbing her hands together, and looking at them closely every moment. After I had felt her pulse, she took a handkerchief from her pocket, moistened it with a little cologne water, which she had in a vial, and wiped the spot which my fingers had touched.

To test the sensibility of the hands, I made use of the æsthesiometer, without however detecting any abnormal condition, but she at once took another handkerchief, and wiped all the places touched, with cologne as before. She had a pocket full of clean handkerchiefs, never using the same one twice, and putting the soiled ones in another pocket.

She has given up reading, because handling books or newspapers was, she was sure, a certain source of pollution. At first this idea was only applied to books from a library to which she was a subscriber, but latterly it had been extended to all printed matter.

Further examination showed that she was subject to almost continual headache, mainly at the vertex, and that she had occasional attacks of dizziness. She slept badly, frequently getting only two or three hours of disturbed slumber. Her pulse was 96, weak and irregular. The heart-sounds were normal, but the action of the heart was feeble, with an irregular rhythm, and an occasional intermittence. The ophthalmoscope showed nothing abnormal, beyond a possible slight increase in the red tinge of the disk.

Menstruation was regular in every respect, but there was decided gastric dyspepsia. The phosphates of the urine were in great excess; in other respects there was no derangement of this excretion.

No hereditary tendency to insanity, or other neurotic condition existed. Previous to the occurrence of the mental disorder in question, she had been of equable temperament,

and not at all disposed to melancholy or depression of spirits. Now, however, her mind was filled with the most gloomy forebodings and apprehensions. Her life was one continued state of fear lest she had become contaminated by something she had touched, and had forgotten to wash her hands after the contact, or had imperfectly washed them.

So far as could be discovered, there was no existing source of trouble or anxiety. She was in affluent circumstances, and had lived happily with her husband, who had however died, a year after marriage, of phthisis, with which he had been affected several years. There had been no pregnancy.

CASE IX.—Miss F., aged 18, tall and slender, consulted me January 23d of the present year (1879). From herself and her mother I obtained the following history :

About eighteen months previously she had gone to stay in the country with some friends, and on one occasion slept in a farm-house. On her return home she at once took a bath, and had her head, the hair of which was very long and thick, thoroughly washed; to her great surprise and disgust, it was found to be full of lice. She had always been exceedingly cleanly as regarded her person, and the shock she experienced on learning of the presence of these parasites completely unnerved her. She insisted on repeated washings of the head with soap, carbolic acid and other detergent and disinfectant substances, and even then, was not convinced that all the vermin had been destroyed.

This was the starting point of all the subsequent mental disturbance. Little by little the idea became rooted that she could not escape sources of contamination, that other persons might defile her in some way or other, and that the various articles about her might also possess a like power. She was particularly careful in regard to avoiding children, and would not on any account allow a child to touch or

even to approach her closely. When she went out into the street she carefully gathered her skirts together on passing any person, for fear that she might by mere contact be contaminated. She spent hours every day in minutely examining and cleansing her combs and brushes, and was even then not satisfied that they were thoroughly purified.

As to her hands, she washed them, as her mother informed me she had ascertained by actual count, over two hundred times a day. She could touch nothing without feeling irresistably impelled to scrub them with soap and water. Gradually the idea of lice had been lost sight of, and for several months previously to her coming to me, the fear of pollution had had a much more extended source. She could not define with any exactness what the *materies pollutionis* was, though she imagined it to be something that was capable of doing her bodily injury in some subtle manner, by being absorbed into her system through her hands or other parts.

Some little time before coming under my observation, she had extended her fear of contamination to the soap with which she felt compelled to wash her hands, and hence she was obliged to wash them again in pure water in order to remove all traces of the soap. Then, as the towel with which she wiped them dry had been washed with soap, she rinsed her hands in water, and allowed them to dry without the aid of a towel.

In removing her clothes at night preparatory to going to bed, she carefully avoids touching them with her hands, because then she would not have sufficient opportunity for washing. She, therefore, has some one else to loosen the fastenings, and then allows her garments to drop on the floor, where she leaves them. Nothing would persuade her to touch any of her under-clothing after it has been

worn, till it has been washed. A great source of anxiety with her is the fact that her clothes are washed in the laundry with the clothing of other people, but she sees no practicable way of escape from this circumstance. It none the less, however, makes her very unhappy.

When not washing her hands or examining her combs and brushes, she spends nearly all the rest of the day in carefully inspecting every article of furniture, and dusting it many times.

Thus her whole life is one continued round of trouble, anxiety and fear. Her whole character and disposition have changed. She is suspicious of every person and everything.

She is subject to insomania, frequent headaches, and loss of appetite. There are noises in her ears, flashes of light before the eyes, and an utter impossibility of concentrating the attention upon any other subject than the one which has obtained so complete a mastery over her. Her menstruation is scanty and somewhat painful, though regular in other respects.

Ophthalmoscopic examination showed the retinal vessels to be increased in size, and the choroid to be of a deeper hue than is ordinarily met with.

Upon conversing with this young lady I had no difficulty in getting her to admit the absurdity of her ideas. She stated that whenever she reflected upon the subject she was convinced of their erroneous character, but that nevertheless she could not avoid acting as she did, for as soon as she was exposed to any possible source of contamination, the ideas returned in full force. It was only when she had, as she thought, done her best to cleanse her hands, that she doubted the correctness of her notions which had so thoroughly become a part of her mentality.

CASE X.—Mrs. R. H. came to my clinique at the Univer-

sity Medical College, and in my absence was recorded by Dr. Morton, as having delusions relative to filth or poisoning, to which she believed herself to be exposed. I knew nothing of this case, till on reading to him the foregoing statement of the chief symptoms I had observed, and which I told him, in my opinion, constituted a distinct type of mental aberration, he informed me of Mrs. H's case.

I saw her first on the 6th of March of the present year, and I have persuaded her to come here this evening, in order that the members may have an opportunity of examining a case of the interesting form of mental disorder under consideration.

From her and her husband I gather the following points in her clinical history:

About four months since, a window out of which she was looking, fell on her head, giving her quite a severe blow from the effects of which she suffered for several days. A week or two after this event, she noticed that a brass candlestick was covered with verdigris, and she undertook to clean it. The fact made a great impression on her, and she at once looked up all the brass articles in her household and gave them a good scrubbing. She then conceived the idea that so much handling of brass would be injurious to her, so she began the hand-washing, which she continues up to the present time, not only after touching brass, but any other thing to which she is not thoroughly accustomed. I had her come to my house in order that I might examine her more thoroughly, but she would not touch the bronze bell-handle, or any of the door-knobs, for fear of contamination. Her husband was with her, and as she was going out of my consulting-room, I watched her to see how she would manage to get out. She would not touch the knob; nothing, she said, would persuade her to

do so ; it was impossible ; so she stood the picture of fear till her husband opened the door for her.

She has also an extraordinary fear of handling coin, especially copper and silver, and experiences great distress after contact with paper money. She thinks it strange that other people can touch all these things without fear of defilement.

Unlike the other cases, she is impressed with doubts in regard to the propriety or advisability of her actions. Is uncertain how much salt to put into her food, is distrustful in regard to the quantity of coffee or water to use in preparing her breakfast. Is afraid the meat is being overcooked, though only just put on the fire ; if she has anything in her hand, is doubtful where to put it. For instance in ironing her clothes, she will hold the iron in her hand uncertain whether she ought to put it on this or that part of the table. Is never sure that her hands are clean, and washes them again and again. In washing and dressing her baby she is thoroughly confused relative to the putting on of its clothes ; shall the stockings go on before the shirt or shall the shirt go on first ? Shall she wash its face before washing its hands ? and so on, so that a duty which only used to take half an hour for its performance, now requires a whole morning.

If however she is told by one in whom she has confidence or whose authority she respects what to do, she has no difficulty in performing any act about which she would otherwise be doubtful.

She has the *folie du doute*, of Le Grand du Saulle, but differently from his cases, this condition was not first in order of occurrence.

It appears to be impossible for her to keep her hands still. She is always rubbing them together interlocking the fingers, or closing and opening them alternately.

She suffers a good deal from pain in the head and dizziness, and does not sleep well. Her digestion is deranged; she is constipated; her pulse is quick and irregular. There is no derangement of the menstrual function.

The constant apprehension that she labors under that she will touch something, the contamination of which cannot be removed by washing, or which she will overlook, makes her exceedingly unhappy. It forms the subject of her conversation, causes her to neglect her household duties, and hence interferes very materially with the comfort and well-being of her household and children. She has become timid, and is hence, afraid to go out alone, or to undertake any work. While in the street she is never certain of her way, and is in continual terror that something capable of polluting her, should without her knowledge, come in contact with her. When I reason with her in regard to the incorrectness of her ideas, she at once admits their falsity, but only for the moment, for the very instant after telling me that she knew she was wrong, she could not bring herself to the point of touching the bronze knob on the door of my consulting-room.

These cases sufficiently show the chief characteristics of this variety of mental aberration, which I have ventured to call Mysophobia. Of course it is not contended that it is a distinct pathological entity. It is simply one of a group of which pyromania, kleptomania, entomania, etc., are members. Neither is it a fully developed form of insanity, for the subjects have a certain amount of control over its manifestations, and are conscious of the erroneous nature of their ideas.

Nor do I think it is identical with the *folie du doute (avec délire du toucher)* of Le Grande du Saulle, as the following description which I take from his monograph on the subject shows:

“The first period which is entirely compatible with physical and mental health, consists of the spontaneous, involuntary and irresistible production of a certain series of theoretical, abstract and ridiculous thoughts on various subjects, without illusions or hallucinations. This series of thoughts may be expressed by notes of interrogation to questions continually addressed by the patient to himself, put with a feeling of profound but vague doubt, but at the same time with a degree of deliberation which is monotonous, overpowering and persistent. Again, there is a mental representation of certain things, and reflections in regard to them which are more or less fixed in character. The internal struggle is a silent one. The subject never complains of the contest which is going on within him.

“The second period is manifested by the following phenomena: Unexpected revelations to the family, the friends and others about him; exaggerated scruples; chimerical fears; apprehensions and distress; periods of excitement with precedent epigastric aura; aversions to some animal; appreciable diminution of the idea of doubt and of the personal questionings; a morbid tendency to repeat the same things to the same person, and of being reassured of any circumstance in exactly the same terms as were previously used; fear of touching certain objects; abnormal instincts of propriety; repeated washings; multiplied eccentricities; spontaneous avowal of the performance of ridiculous acts; long continued intermissions in the course of the symptoms still possible; complete preservation of the entire intelligence.

“The third stage is characterized by the presence of a permanent and seriously morbid state. The condition becomes every day more intolerable; all feeling of sensibility disappears; many of the normal actions of life become im-

possible; going out of the house is extremely repugnant, and at last is given up altogether; the actions become slower and slower, and many hours are passed in dressing in the morning and in eating the meals of the day; the circle of delirious ideas becomes narrowed, and the mental distress augments in proportion; the fear of walking, sitting down, of coming in contact with anyone, of shaking hands, of opening a window or a door, and unconquerable aversions for one object and another increase; the feeling of terror is no longer expressed in words, and the movements of the lips alone indicate the persistence of a mental language; complete consciousness of the situation persists; dementia never ensues, and life is prolonged indefinitely."

It will be evident from this outline description that the cases I have cited are not such as form the basis of M. Legrand Du Saulle's *folie du doute (avec délire du toucher)*. Some of us doubtless have witnessed such instances as he mentions. I can recall several which have occurred within the course of my own experience. It will be seen that the fear of touching certain objects, and the washing of the hands, to which he refers, are only incidental phenomena closely connected with the feeling of doubt which fills the mind of the patient, and have no relation to the fear of contamination which constitutes so prominent a feature of the cases detailed in this memoir.

Mysophobia is certainly closely allied with various hypochondriacal and hysterical forms of disease. Perhaps the nearest analogue is the sexual hypochondriasis or spermaphobia, of which all of us have seen many cases, and in which the miserable subject is continually haunted with the idea of impotence, softening of the brain, paralysis, etc., merely because he has an occasional nocturnal emission, or mistakes the escape of a little urethral mucus for the pass-

age of semen. I have never, however, seen a case in a male and though probably there are such, I am quite sure it is much more common with women than with men.

In several of my cases the affection had lasted two or three years before coming under treatment, and yet there did not appear to be any tendency to development into a more advanced type of mental derangement. The disorder appears to reach its full development in the course of a few months.

At no time is the intelligence of the patient weakened, even when the affection is at its height, or during the existence of a severe exacerbation she is able to recognize the absurdity of the ideas which overpower her, and to resolve that she will endeavor to combat them; and although not successful in this contest, she nevertheless returns to the struggle day after day.

I have treated all my cases upon one general plan, and this has been so successful that I see no occasion for departing from it. As there is usually a tendency to constipation, I administer every alternate night a pill composed of 0.02 gram of podophyllin and 0.20 gram each of extract of aloes and inspissated ox-gall. Indeed, even were there no constipation I would use this pill, with the object of acting thoroughly on the liver and intestines. The intention is not to violently purge the patient however, and therefore if it acts too powerfully, one of less quantities should be administered.

In addition I give the bromide of sodium or potassium or calcium, to such an extent as to bring the patient quickly and completely under its influence, and if there is a decided tendency to melancholia I give opium in combination.

It is not long before amelioration begins; the patient's mental strength improves day by day, and she is the better able to contend with the ridiculous notions which govern

her. The periods during which she is entirely convinced of her errors become longer and more frequent, and the false ideas themselves are less vivid. In the course of three or four months at the utmost, the patient is, according to my experience, free from mental aberration, though greatly reduced in strength. This, however, is not a matter of much consequence. The stoppage of the medication, and the administration of small doses of strychnia, iron and quinine, with cod-liver oil and a full generous diet, will complete the cure. All the cases under my care recovered, with the exception of the two now under treatment, and the result with them, as I judge by the steady improvement they have undergone, is merely a matter of time.

RECORDS OF PRACTICE.

BY WILLIAM A. HAMMOND, M. D.

I. Insanity of Malarial Origin.

M. I., a young woman, aged 27, and free from hereditary tendency to insanity, was brought to me February 9th, 1879, to be treated for insanity. The following history was given :

About two years previously she had had, while living in a highly malarious district, repeated attacks of intermittent fever, through which she had become very much reduced. Instead of consulting a physician, she had treated herself with "ague mixtures," "liver pads" and other nostrums, and had therefore suffered longer than would probably otherwise have been the case. In the autumn of 1877 she was again affected, and was delirious during the febrile exacerbation following the chill. In all, she had at this time eleven paroxysms before they were checked by the use of somebody's "ague cure." But she remained in a cachectic condition, was pale, subject to headaches, had no appetite, and little mental or physical strength.

On the 18th of December of that year, while sitting quietly with her mother, at about four o'clock in the afternoon, she suddenly, and without any prodromatic symptoms, sprang to her feet, gave a loud scream, and rushed out of the room into the street. Here she continued to run and

scream, till after several moments she was brought back to the house. As she remained in a violent state of excitement, a physician was called. He diagnosticated insanity, gave her a hypodermic injection of morphia to quiet her and put her to sleep, and the next day she was, on his affidavit and that of another physician, sent to a lunatic asylum. Here she remained till, as above stated, she came under my observation.

At that time she was pale and exsanguined; her pulse was weak and frequent—110 per minute; her tongue coated and her breath offensive. On examining the abdominal region, I found her spleen to be considerably enlarged. She talked reasonably enough, giving a full and correct account of her illness. She had no fixed delusions, but was sensible of the fact that she was subject at times to various erroneous ideas, mostly connected with herself, and of a depressing character, such as that she was extraordinarily wicked, had specially incurred the wrath of God, had lost all her property, had become hopelessly diseased, etc. Most of these were connected with hallucinations of hearing to which she was almost constantly subject. She was profoundly melancholic, and had been in the same depressed mental condition ever since the termination of the attack of acute mania with which she had been affected when taken to the asylum, and which had lasted three or four months. She had made two not very determined attempts at suicide by endeavoring to stab herself with table knives.

She slept very little, and it was mainly at night that her hallucinations of hearing occurred. These consisted of voices telling her of her various crimes, and of sounds resembling the ringing of funeral bells, fusilades of musketry and the firing of minute guns, as if some one were being buried. While these were going on she would get up out

of bed and walk the floor, wringing her hands, sobbing and crying and wishing she were dead. She admitted that she could not at these times be safely trusted not to attempt suicide. Towards morning she became more calm, and generally managed to get an hour or two of tolerably sound sleep.

With these mental symptoms there were almost constant headaches, located mainly in the vertex, frequent attacks of vertigo, flushings of the face and distressing tinnitus aurium.

Examination with the ophthalmoscope showed the existence of pigmentary deposits in both retinae; and a drop of blood taken from the forearm also contained pigment. I punctured the spleen with a small hypodermic syringe, and withdrew a few drops of blood. This likewise contained pigment, both free and contained in cells.

During her residence in the asylum this patient had been chiefly treated with bromide of potassium and chloral, for the purpose of causing quiet and sleep. No inquiries, so her mother informed me, had been made relative to her antecedents or previous clinical history.

I was of the opinion that the case was one of insanity of the melancholic type induced by malarial poisoning, and therefore similar as regarded etiology to instances of other affections of the nervous system which had previously come under my notice, and to which I had given special attention.* I was further disposed to think that the patient could be advantageously treated at her own home instead of being returned to the asylum. She was exceedingly adverse to going back.

*See memoir "On Pigmentary deposits in the Brain resulting from Malarial Poisoning." Transactions of the American Neurological Association, Vol. I, 1875. p. 142.

I therefore had a good nurse procured for her and gave directions that she should have a full and nutritious diet, and take ample exercise in the open air, regardless of the weather. Knowing by former experience the good effects of opium and its preparations in such cases, and also of the almost specific influence of arsenic in malarial affections of the nervous system, I prescribed 0.01 gram of the sulphate of morphia and 0.005 gram of arsenious acid to be taken each three times a day, the former before, the latter after meals.

Under the influence of this treatment, sound and refreshing sleep was at once obtained, and the nervous system became much more quiet. Little by little the mental depression faded away, and at the same time the hallucinations of hearing also gradually disappeared. The spleen became reduced in size, and at the end of a month there was no longer any pigment to be found in the blood, though the deposits in the retinae still remained apparently unaffected.

At the present writing—March 22d—the patient is in a fair state of health. There is rather greater gravity of demeanor than is natural, but there are no hallucinations. Sleep is sound and refreshing, though the morphia has been discontinued for over a week. The spleen is almost reduced to its natural size, and the pigment spots in the retinae are breaking up and tending to disappear. The general condition is very much improved; the appetite is good, the dull leaden hue of the countenance has been replaced by one of a healthy ruddy color, and all the indications point to a complete restoration. The arsenious acid is still continued, and I propose to keep on with its administration for at least two months longer.

The influence of malarial poisoning as a cause of insanity was pointed out by Sydenham, who refers to a particular

kind of mania which, so far from yielding to purgatives and blood-letting, is rendered worse by those agencies. It is consequent on intermittent fevers which have lasted some time, especially those of the quartan type.

Baillarger* cites several cases in which intermittent fever was followed by insanity, and in which cures were accomplished by the use of antiperiodic remedies.

Griessinger,† in speaking of this cause of insanity, and stating that it is not the intermittent fever which induces the mental disorder, but the endemic cause of the fever, says:

“At other times, after an ordinary intermittent fever has lasted for a certain time, there appear, instead of the paroxysms of heat and cold—as if through a leap of the affection—intermitting paroxysms of insanity (without attacks of mania with delirium, also impulsive suicide during the fit); these states often, with disappearance of decided periodicity, assume the remittent and continuous type, and pass into chronic mental disease. Finally, there is a third mode of origin which is the most frequent of all; the insanity occurs as a disease consequent upon intermittent fever which has disappeared, either in the early stage of convalescence, or not until several months after the cessation of the ague. It is especially after very protracted and severe (especially quartan) fevers that disorders remain which may produce insanity.”

The last form of seizure was that with which the patient whose case I have just related was attacked. Griessinger then continues:

“The mental disease frequently continues as a uniform,

* Sur le folie à la suite des fièvres intermittentes.—*Ann. méd-psychologiques* 1843. t. III p. 372.

† Mental Pathology and Therapeutics. New Sydenham Society Translation, p. 183.

persistent, chronic affection, and the symptoms of the intermittent fever are no longer observed. Or traces of the fever may still be present : the spleen and liver are enlarged, cachexiæ exist, and irregular paroxysms of ague appear from time to time (during the mental disease). In cases of the latter kind especially, the insanity frequently ceases, sooner or later, with the return of an acute series of severe attacks of intermittent fever ; but by the use of quinine the collective intermittent disease may be removed. In the origin of all cases belonging to the third category, it is certain that, on the one hand, the cachectic-anæmic state which the intermittent fever leaves behind it, and, on the other, the melanæmia and the deposit of granular pigment in the cerebral vessels must play an important part. (On this subject see my paper on infectious diseases in Virchow's Pathologic, II.) As the latter can also very probably call forth severe acute cerebral affections (coma apoplectiform attacks, etc.) which are sometimes observed in intermittent fever (occasional cases belonging to the first and second category). Still, post-mortem examinations occur in which no pigmentation of the brain can be discovered."

On the other hand, the majority of writers on psychological medicine entirely ignore the relation of cause and effect existing between the malarial poison and insanity. And some of them, as, for instance, Dagonet,* express the opinion that no such connection is present.

This author calls attention to the fact that some writers have even gone so far as to declare that an attack of malarial fever is sometimes curative of insanity. With this opinion he does not agree, however, and hence he opposes the views of some German alienists to the effect that asy-

* Nouveau traité élémentaire et pratique des maladies mentales. Paris, 1876, p. 489.

lums for the insane should be constructed on marshy soil. His experience, he states, demonstrates to him that the course of insanity is never favorably influenced by an attack of intermittent fever, for that, although during the height of the paroxysm maniacal excitement may for the moment be calmed, it always returns with increased violence as soon as the accession has passed away.

He obtains confirmation for this statement from the observations of M. Duclos, superintendent of the asylum at Betton. The building is situated in a valley in which, during certain seasons of the year, water accumulates to a great extent, transforming the surrounding region into a veritable marsh, which the heat of the sun, no matter how greatly prolonged, cannot ever dry. Intermittent fevers are, therefore, endemic throughout the region, no one escaping—physicians, employees, patients, all succumbing to the deleterious influence. The insane resist with less power than any others; the melancholics become more excited, but soon fall into a deeper state of depression than before; the maniacs are at first rendered calmer, but ere long suffer an increase of mental and physical agitation, and all pass more rapidly than would otherwise be the case to the state of dementia. Of all who were affected, only two maniacal patients were alleviated.

In this, as well as in other affections of the brain of malarial origin which have come under my charge, I placed great reliance on arsenic as the chief curative agent. It has always appeared to me to act with much greater efficiency than quinia, or any other anti-periodic. Under its influence the pigment of the spleen, blood and retinae has certainly been diminished from the first, and has eventually disappeared. Presumably a like effect has been exerted upon any deposits of pigment which may have existed in the cortical substance and other parts of the brain.

II. Syphilitic Aphasia.

J. F., a young man twenty-four years of age, and by occupation a clerk, came under my charge October 20th, 1878, having been suddenly, as his brother reported, entirely deprived of the power of speech on the preceding day. The clinical history given me by the brother was as follows :

In May, 1877, he had contracted a chancre on the glans penis. Previous to that time he had always been in good health. On the eighth day after a suspicious intercourse the chancre appeared. A physician whom he consulted diagnosticated an indurated sore, and treated him with the bichloride of mercury internally, and the black wash as an external application. No cauterization was used. Under this treatment the chancre was healed in about a month, and then all medical treatment was discontinued.

But in July of the same year a cutaneous eruption appeared on the skin of the face, arms and breast, and gradually extended to other parts of the body. He again placed himself under medical treatment, and was advised to take no more mercury, but to rely on the iodide of potassium, which was given to him in doses of two grains, subsequently increased to five, three times a day, in fluid extract of sarsaparilla.

As this treatment appeared to be ineffectual, he became discouraged and dissatisfied. He accordingly consulted another physician, who stopped the iodide of potassium, and prescribed mercurial vapor-baths and frictions with the oleate of mercury. These measures were very successful, as the eruption disappeared entirely in the course of two or three weeks.

He then, thinking himself completely cured, discontinued the use of the remedies, but was advised to go to Sharon and take the sulphur baths. He accordingly spent the

month of August at that place, and returned to New York apparently as well as ever.

But in January, 1878, he began to experience nocturnal pains in the legs, and thinking them to be rheumatic, he consulted an "electrician," who confirmed his diagnosis, and advised the use of electricity. This was applied every day in the form of faradism, to the back and legs, but after two weeks of this treatment, there being no improvement, he gave it up, and placed himself under the charge of another physician. This gentleman recognized the syphilitic character of the pains, and prescribed mercury and iodide of potassium. For a time he improved, but the doses of the iodide were too small (three grains, *ter in die*) to be of any permanent benefit. He therefore left his physician, and went to the Hot Springs of Arkansas. Here he remained two months, and in May returned to New York seemingly in excellent health.

Nothing occurred worthy of notice all through the summer of 1878. He was free from pain everywhere, and was able to attend to his business without the least inconvenience.

But in the early part of September he began to suffer from frontal and verticular headaches, attacks of vertigo and persistent insomnia. A physician whom he consulted told him it was his stomach, and treated him with an elixir of strychnia, pepsin and bismuth. The troubles, however, continued to increase. He became irritable and fretful, passed frequently the whole night without sleep, and occasionally experienced a sensation of numbness in the right arm. The bromide of potassium was now given to him, and electricity was again made use of, this time the primary current being applied to the head and arm. His sufferings were ameliorated by these means, and he was hopeful of recovery, when on the morning of the 19th of October,

just after having eaten his breakfast, he suddenly found himself unable to talk. He had that morning remarked that he was feeling better than he had felt for several days, and at the time the loss of speech occurred, there was no other symptom so far as could be ascertained.

At his visit to me on the 20th of October, I found that there was a slight degree of paralysis of the right side of the face, but that the tongue could be moved freely in all directions. He was, however, utterly unable to articulate, either of his own accord or by repeating any word addressed to him. He could make signs of affirmation and negation, point to things he wanted, and by gestures make himself tolerably well understood, but could not write—not even his own name. When I asked him where he lived, he could not tell me, and exhibited much distress at not being able to do so, but on my calling over the names of various cities, he shook his head at each one till I mentioned New York, when he nodded affirmatively with every sign of pleasure. He often endeavored to speak, and became much excited at his inability to do so, but the only sounds he uttered were inarticulate, something like “Oo, oo, er, o, upa.”

His pulse was 85 full, and easily compressible; there was no evidence of heart disease. The urine was of normal composition.

Ophthalmoscopic examination revealed the existence of double optic-neuritis. There was no implication of any of the motor nerves of the eye.

He admitted the existence of pain in the head, chiefly in the frontal region; of vertigo and noises in both ears. There was no accumulation of cerumen in either ear.

I prescribed a saturated solution of the iodide of potassium, twenty drops to be taken three times a day, and the doses to be increased two drops every day, and a pill of the

protoiodide of mercury, 0.03 gram (half a grain) also three times a day.

After being subjected to this treatment for one week, he exhibited marked improvement in all the cerebral symptoms, with the exception of the aphasia, which still continued without the least amelioration. On the 1st of November he went to bed at about eleven o'clock at night, and after sleeping soundly for a couple of hours, woke, and going to his brother's room, which was adjoining his own, woke him and began to talk. His speech had returned as suddenly as it had left him. I saw him the next morning, and he was talking fluently, without the least impediment.

I carried the iodide of potassium up to one hundred and fifty drops three times a day, but for the pills of protoiodide of mercury substituted 0.002 gram (one thirty-second of a grain) of the bichloride in solution, and this he continues to take to the present time.

There has been no relapse, and no further manifestation of syphilis.

Cases in which aphasia has apparently been due to syphilis are recorded by several authors. The subject has been well considered by Tarnowsky* in a special monograph. Other cases have been under my charge, but none in which the abolition of the faculty of speech was so complete as in the one the details of which are given. There was amnesia, ataxia and agraphia.

One of the most striking of my own cases is cited in another place,† but I do not hesitate, in view of its interest, to quote it here:

"Mr. B. was sent to me December 19th, 1874, by Prof. M.

* *Aphasie syphilitique.* Paris, 1870.

† *A Treatise on the Diseases of the Nervous System.* 6th edition, 1876, p. 244.

Pallan. At the time he was suffering from agonizing pain in the left side of the face, paresis of the whole right side of the body except the face, aphasia of the amnesic variety mainly, although the power to coördinate the muscles of articulation was greatly impaired, and from decided mental disturbance, characterized by the existence of hallucinations and marked dementia. The sight of both eyes was weakened, and examination with the ophthalmoscope showed the existence of double optic neuritis. There was a clear history of syphilis."

Relief from all the symptoms was obtained by the use of iodide of potassium in doses gradually increased up to sixty grains three times a day. By the time twenty grains were reached amendment began, and after two months he was able to resume his duties as cashier of a bank.

"Two months afterwards he had a relapse into his former condition. The accession was sudden. He awoke in the morning with pain in the head, weakness of the right side, and complete loss of speech. His aphasia was removed by a single application of the galvanic current from ten cells to the tongue, and I resumed the use of the iodide as before."

The patient did not adhere to my directions to continue the iodide of potassium with small doses of bichloride of mercury, and in the spring of 1876 he had another attack similar to the first, but decidedly more severe. From this he did not recover completely, and gradually he became hemiplegic on the right side, and died in a state of dementia in the autumn of the same year, death being immediately preceded by repeated epileptiform convulsions.

The following interesting case I quote from Dr. Dowse's* recently-published admirable little book :

* Syphilis of the Brain and Spinal Cord, etc. London, 1879, p. 109.

"A. P., æt. 36, was admitted into the Central London Sick Asylum, Highgate, November 3d, 1875, and died in the spring of the following year. She contracted syphilis from her husband when twenty-nine years of age, and since this time has had several miscarriages. The attack of syphilis was severe, and was succeeded by a large nummular gumma of the tongue, which yielded rapidly to treatment, and for two years before the syphilis came on, her health had apparently been sound. At this time, however, family matters distressed her. She became nervous, anxious and irritable, and would suddenly find the *right* leg to give way as she was walking down stairs. Her ideas would become confused, and she would often get into a passion, when articulation became impossible. This was followed by a fit of sobbing, and not till then did the power of speech return. It was succeeded by defective coördinating power in the right arm, so that writing was difficult; but coincident with this the speech was faulty, and she could not use the letter 'R.' In attendance, also, upon the derangement of speech was defective correlation of motor ideation. She could write fairly well before her seizure, and was intelligent, but now she wrote as follows: 'I feel very weak and nerves—my head is very bad.' She would lose hold of a cup which she might be carrying, and not be aware of it for some few seconds after. There was want of voluntary coördinating power both of leg and arm, sometimes existing in both together; at other times in one limb only, with inability to articulate freely, as well as a dull aching pain in the head, not unfrequently extending to the limbs. These were the chief signs exhibited by her for some time. The cranial nerves were not markedly involved, but occasionally there was slight evidence of a right facial palsy, and involuntary twitchings of the muscles of this side of the face.

On the 10th of January she had a *quasi* epileptic fit, with irregular movements of the right facial muscles and right extremities ; but this attack was of short duration.

"Three months before her death I was called to her, and found her in a condition of sub-consciousness, with bilateral twitching of facial muscles and rigid spastic condition of right arm. She was quite sensible to pricking and pinching on the *left*, but on the *right* side of the body there was complete loss of voluntary but not apparently of automatic power. When the attack had spent itself she became partly comatose for over thirty hours, and when consciousness returned there was found to be complete absence of speech, as well as perfect right hemiplegia ; no control over sphincters.

"A month after the attack the following observations were made, but little attention was paid to the case beyond the question of the relation of mind to language and the power of articulation. The *right* hemiplegia was persistent until her death, except some slight power which she regained in the *right* leg. The *right* arm remained permanently flexed, the forearm upon the arm and the fingers into the palm of the hand. No cranial nerves were directly involved. The drowsy heavy facial aspect which had existed previous to the complete hemiplegia had now given way to a bright and intellectual expression, but the condition of aphasia was complete, and her language was limited to 'don't know' from first to last. In the same way that the hemiplegia was persistent, so in like manner was the state of aphasia also persistent."

After some pertinent remarks relative to the essential nature of aphasia, Dr. Dowse continues:

"She still says 'don't know' to every question that is put to her. The special senses are excellent. She appears to

be mindful of the past and conscious of the present. It is unfortunate that she is unable to give one an exact idea of her mental state, but I am inclined to think, if she could only express her thoughts by language, she would be found fairly intelligent. Sometime after this she suffered from persistent diarrhœa, became comatose, and died in a few hours.

"Post-mortem examination. The dura mater was normal, but imbedded in its substance, just to the left of the longitudinal sinus were two irregularly-shaped bony plates. The arachnoid membrane was opaque and distended with fluid. At the base of the brain this membrane was much thickened, fibrillated and bound down the vessels and nerves; the former gave no evidence of plugging or atheromatous change. There were two growths, one involving the gray matter and substance of the post part of the inferior frontal convolution, and another the lower two-thirds of the anterior and posterior central convolutions. Over these tracts the tumors had replaced almost in its entirety the gray matter. There was considerable softening of the white nerve substance adjacent to these bodies. The microscope revealed the usual characteristics of a gumma, and the spinal cord gave evidence of a sclerosis of the right lateral column."

Tarnowsky, after detailing very fully these cases which had been observed by himself, cites fifty-three instances which had been described by other writers. Some of these are clearly not cases of aphasia at all, but of loss of the power of articulation from paralysis of the tongue and other muscles concerned in speech, examples therefore of a mistake which is often made. At the same time there is no doubt of the fact that aphasia may exist in conjunction with paralysis, but unless of the amnesic variety, could not readily be detected.

As to the morbid anatomy of these cases, there is no uniform or definite lesion to which the symptoms observed during life can be ascribed. Sometimes there is a gummy tumor, or rather a circumscribed basilar meningitis, sometimes a hemorrhage, sometimes a thrombosis, sometimes, and perhaps most frequently, no alteration can be detected either by the naked eye or the microscope. In these latter cases, as well as in those of very temporary character, the lesion probably often consists either of congestion or anæmia, and perhaps sometimes of unrecognizable cell derangement, directly the consequence of the syphilitic poison. In some of these cases, such as the one detailed by Dr. Buzard,* there is an obvious epileptiform seizure.

In regard to the morbid anatomy of brain diseases of syphilitic origin, Virchow† wrote twenty years ago:

“The alterations which the substance of the brain can undergo are very numerous, but it is definitely ascertained that in paralysis of syphilitic origin post mortem examinations up to the present time have often only given negative results.”

Since that period, however, some advance has been made, and notably by the contributions made by Dr. O. Heubner,‡ concerning syphilitic disease of the arteries of the brain. This leads to a gradual diminution of the calibre of the affected vessel, and to a consequent interference with the due supply of blood to that part of the brain, normally securing its nutrition through the diseased channel. Thrombosis may also have a like cause. Such disease of the left middle cerebral artery would quite certainly, by lessening the amount of blood distributed to the speech-tract on that

* Clinical Aspects of Syphilitic Nervous Affections, London, 1874, p. 81.

† Abhandlung ueber die Natur der constitutionell-syphilitischen Affectionen, *Archiv*, 1858, Vol. XV., p. 290.

‡ Die Luetische Erkrankung der Hirnarterien, U. S. W., Leipzig, 1874.

side, induce aphasia with or without right hemiplegia of greater or less extent, according to the diameter of the affected vessel at the point where the lesion existed. A like condition of the right middle cerebral artery might cause aphasia with left hemiplegia, but the former condition by no means with as great a degree of probability as if the vessel on the left side were the one involved in the morbid process.

Relative to the treatment of the case now reported, it is evident that the patient was very neglectful, and that some of those to whom he committed himself for treatment, had no definite conception of the proper method of management. It is to be borne in mind that the iodide of potassium must be given in large and gradually increasing doses, and that mercury is a powerful adjunct. Usually I prefer the bichloride in solution, in all syphilitic affections of the nervous system. At first it may be given in doses of the 0.004 gram, and when the symptoms yield this should be decreased to 0.002 gram, or even 0.001 gram, and continued for several months, or even a year or longer. A solution of 0.05 gram of the bichloride to 30. grams of distilled water, is a convenient ratio, and of this the doses may in the beginning be twenty-five drops, to be subsequently decreased to ten.

In the temporary cases—and the best indication of non-permanence is the suddenness of the accession—I think decided benefit may be obtained from the use of the primary or galvanic current to the tongue, and also to the brain. For this latter purpose the poles should be applied preferably to the mastoid processes, and the current passed for not over a minute or two. No more than from four to eight cells should be brought into action, as a greater number would probably cause very severe vertigo and syncope.

III. A Case of Hysterical Deception.

Miss A. W., 27 years old, unmarried, and in affluent circumstances, residing in a large eastern city, accompanied by her aunt, consulted me, November 14th, 1878, for a bodily and mental condition, which she said was driving her mad. The most prominent symptoms were "nervousness," pain in the front of the head, inability to sleep, confusion of ideas, numbness of the arms and legs, tenderness over several parts of the spine, loss of appetite, dyspepsia, a fixed pain in the left groin, a constant gnawing sensation at the pit of the stomach "like" she said, "the pain that would be caused by some small animal biting and tearing me with its teeth," and above all, by an irresistible impulse and desire to swallow pins and needles. Some eight months previously she had, as she informed me, accidentally swallowed a pin which, while dressing herself one afternoon, she had for a moment put between her lips. She thought very little of the circumstance at the time, and suffered no immediate inconvenience from it. In fact, it had passed out of her mind, till a few weeks afterwards she had felt a sharp pain at a point on the inside of the left thigh, a little above the knee, and on examination had discovered the point of a pin protruding through the skin. With some little pain and trouble she had extracted the foreign body, and then found it to be to all appearance the very pin she had swallowed.

The next day another pin slipped down her throat in precisely the same way as the other. She felt some pain in the region of the stomach very soon afterwards, but experienced no other symptom from it till exactly one week subsequently, she suffered a little smarting, just above the right knee, at a point corresponding to the place where the other pin had made its exit from the left thigh. On inspec-

tion she discovered a sharp metallic body sticking out of the skin. She seized this with a pair of tweezers and succeeded in removing a pin, doubtless, as she said, the identical one she had swallowed a week before.

She now began to feel, as she declared, a desire to swallow pins, and yielding to it, allowed two or three, every day to go down her throat. These subsequently made their appearance in various parts of the body. She had extracted them from the arms, breast, the neck, various points of the back and abdomen, the thighs and legs, and even as far down as the feet. One had come out of the eye-ball, two from the ears, a dozen or more from the vagina, a great many had been passed from the bowels, and several from the bladder. In all she thought she had swallowed over two hundred and fifty pins, and a number were at the time she consulted me making their exit from her body at several points of the surface.

She rather courted an examination than otherwise, and on inspection I discovered one pin protruding from the skin of the left fore-arm just below the elbow, another from the breast below the left mamma, another from the skin of the back on the right side on a line with the first dorsal vertebra, two immediately below the umbilicus, and sixteen in the vagina.

I must say that I did not believe a single word of her story, and I was convinced before examination that all the pins that would be found would be only what she had previously stuck under the skin. As a matter of fact, all protruded by the heads and not by the points. Those in the vagina were in a bundle with the heads towards the exterior.

Her chief object, she said, in consulting me, was to be cured of her irresistible impulse to swallow pins and

needles. I remarked to her that I had not found any needle; but she explained this by saying that she had that morning before coming to me taken out seven or eight, and that she had the previous evening swallowed as many as fifty, which would begin to make their appearance in the course of a week.

I refrained from taxing her with her fraud at this time. I saw that she was strongly hysterical, and I wished to subject her to medical treatment for a few days before accusing her of deception and thus losing her confidence. I accordingly prescribed a blister over each ovary and a mixture for internal administration, consisting of bromide of sodium, 35 grams, and elixir of the valerianate of ammonia 120 grams, a teaspoonful to be taken three times a day. I applied the blisters over the ovaries because there was marked tenderness there on pressure, and experience had convinced me of the ovarian relations of most cases of hysteria that had come under my notice.

But I had an interview with her mother, a very sensible lady, and told her of my conviction that her daughter was practising a deception for which, however, she was not altogether responsible. She told me that no one had ever seen her daughter swallow either pins or needles, and at once agreed with me as to the falsity of the whole history.

At the daughter's subsequent visit to me, November 17th, she was, in accordance with my request, accompanied by her mother. She was feeling much better in every respect, but the pin and needle swallowing, she declared, still continued, and many were at that time sticking out of her body. I removed fifty-two pins and needles from various parts, including ten pins from the vagina, all with the heads and eyes pointing outwards.

I then informed her that I was certain she had not swal-

lowed a single pin or needle, and that all I had extracted she had previously put in the places where they had been found. She was at first very indignant, and pretended to be about to leave the room in a rage, but in a few minutes after I had reasoned with her, and informed her that the impulse to deceive was what she had to be cured of and not of one to swallow pins and needles, she began to sob and cry, and ended by a full confession that the whole story to me, and her subsequent conduct were deceptions.

In this case the prime motive for the fraud attempted to be practised, appeared to be the desire to excite astonishment and sympathy, although the patient could give no very definite account of the matter. She said that the idea of the deception had not occurred to her till after she had left her own house to visit me. She was inclined to think that the governing incentive had been an idea that her real symptoms were not sufficiently striking to excite my interest, and that she would be more likely to obtain attention if she reported herself to be the subject of some unusual disorder.

She went on improving, and is, I believe, now in very good health.

I am tempted here in view of the interest of the matter to quote the main points in a very remarkable case of hysterical deception reported over fifty years ago, by Dr. William Pickells,* and in which the subject appears to have imposed not only upon her family, clergyman and others, but upon the reporter himself.

The patient, a woman aged 28, had been low spirited for several months, in consequence of the death of her mother.

* "Case of a Young Woman who has discharged, and continues to discharge from her Stomach a Number of Insects in different Stages of their Existence," *Transactions of the Association of Fellows and Licentiates of the King's and Queen's College of Physicians in Ireland*, Vol. IV, 1824, p. 189.

She suffered from vomiting of blood, retention of urine, various kinds of convulsions, cataleptic seizures, head-ache, noises in the ears, occasional deafness and blindness, and perversion of the senses of taste and smell. She ate large quantities of chalk, and sometimes vomited matters having a strong urinous odor. Under the idea that she was about to die, the extreme rites of the church had within a period of three years, been administered to her not less than fourteen or fifteen times.

"For upwards of a fortnight prior to the discharge of insects she had suffered under obstinate costiveness, having taken a great number of purgatives without effect. On the night immediately preceding the day of the discharge she had gone to a wake and remained there a considerable part of the night. The scene before her recalled forcibly the circumstance of her mother's death, and she at length fancied that in the corpse which lay before her she saw her mother. She was seized at the instant with a violent convulsive paroxysm, during which blood gushed simultaneously out of her mouth, nose and eyes. A quantity of raw spirits, by a facility unfortunately but too characteristic of the lower orders in this place, was in vain poured down her throat in order to recover her. On the following morning the accumulated purgatives operated severely, both upwards and downwards; and in the course of the same day she vomited, for the first time, the larvæ of which a specimen in the natural size, is represented in Fig. 1, of Plate 1, supposed to be those of a species of beetle.* I have myself

* These larvæ were submitted to a naturalist, Dr. J. V. Thompson, and by him determined to be those of the *Blaps mortisaga*, a coleopterous insect common about Cork. There were also the larvæ of another insect of the same class *Tenebrio molitor*. Besides these she also vomited the larvæ of a dipterous insect, probably of the *Musca grossa*, which inhabits the excrement of the cow; and a large number of ascaridæ similar to the *Ascaris felis* found in the stomach of the cat. In giving this information Dr. Thompson says:

since seen her repeatedly vomit similar larvæ in consequence of emetics. Their expulsion was commonly accompanied with hæmatemsis, and in almost every instance followed after a short interval, by convulsions."

She continued at intervals to vomit larvæ and also passed them *per anum* in large numbers, particularly when she had taken a purgative. The doctor continues:

"On the eighteenth of April in the morning succeeding the day on which the event happened, I made the following note.

"The singular phenomenon which it records rests, it must be observed, solely on the authority of the young woman. I retain her own phraseology, however uncouth, as bearing the stamp of verisimilitude. 'Discharged on yesterday from the stomach with great difficulty, a green thing as long and as thick as one of her fingers which *flew*. It had wings, a great many feet and a turned-up tail. It was green.' In regard to this it may be mentioned, that about this period she frequently vomited green matter, which might possibly have induced a green discoloration. Three beetle larvæ and a clot of blood came up with it. She saw it distinctly leap and clap its wings immediately after having been thrown up. She took it into her hand and put it into a wineglass which it almost filled. It immediately forced its way however, out of the glass, and flew first on the table and then on the floor. She was now seized with

"It is altogether pardonable to entertain a degree of incredulity on the first view of such a remarkable case; indeed, the facts regarding the beetle appear so much at variance with what knowledge we possess of the habitudes of the coleoptera, that, unless supported by the several analogous cases to be found in Vol. VII, *Edinburgh Medical and Surgical Journal*, p. 41 and 48, and Vol. VI of the *Trans. Royal Irish Academy*, the most credulous naturalist, would, I fear, be inclined to treat the whole as an imposition too ridiculous to merit a moment's consideration."

In which latter statement, notwithstanding the cases referred to, all naturalists and physicians of the present day will, I think, unhesitatingly agree.

a convulsive paroxysm; upon recovery she and her aunt, who had just come into the room searched for it in vain."

Dr. Pickells states that about seven hundred larvæ were vomited altogether, besides about sixty pupæ, or "winged ones," as she called them, and a dozen or more of the images or perfectly formed insects.

The convulsions to which she was subject were epileptiform in character, and were often preceded by the globus hystericus. A somewhat extraordinary method, even for a hysterical woman, of instantaneously stopping these seizures was accidentally discovered, and which, following Dr. Pickells, I quote in Latin:

"Digito medici in vaginam intromisso, et in os uteri adpresso semper cessarunt convulsiones, eo annoto autem, redierunt."

As probable sources of these larvæ, the doctor cites the fact that she had twelve years previously drank water in which clay taken from the graves of two very popular clergymen, had been steeped, under the idea that by so doing, she would be secure against disease and sin.

Also that eight years previously, she had passed the night on her mother's grave, and may have taken the larvæ into her stomach at that time. The *Blaps mortisaga* being as he states, a frequenter of graveyards.

It is however, not to be believed for an instant, that the insects in various stages of transformation had remained in her stomach for any length of time—probably not so long as a few hours. The gastric juice as is well known, is destructive to all animals, and the larvæ of beetles could not have resisted its action. She swallowed them immediately before they were vomited, and probably took them in with the earth and chalk she was in the habit of eating. As to the perfect insects which flew, the doctor did not see any of

these at any time and the statement of their ejection was probably a fabrication.

As to the opinion of the doctor "that the interesting fact seems to be established that the different successive metamorphoses of insects may take place in the human stomach during life," no one who has seen much of hysteria will consider the matter as settled by this case, and all competent physiologists and entomologists will unhesitatingly reject the theory.

The two following interesting cases occurred in Dr. Morton's practice.

I.—Toxic Effects of Tea.

A. B., a young gentleman æt. 30, somewhat sallow and thin in flesh, of fine personal appearance and apparently in good health, is a "tea broker," this occupation requiring generally also the practice of "tea tasting."

These terms "tea broker" and "taster" become interesting in view of the consideration that there are several thousand people in New York who are "tea tasters," and that the specific train of morbid symptoms which follow the practice, fairly constitute an "occupation disease," as much as "painter's colic," "glass grinder's disease" or others of this same class. The pernicious effects of "tea tasting" upon many of its followers are recognized by all of them. This is well illustrated by the remark of a wealthy tea merchant who said: "I would rather give a hundred thousand dollars than have my son become a 'tea taster.'" Almost anybody one meets, familiar with the tea business, is ready to give examples within his own knowledge, of friends whose nervous systems have become wrecked by the practice. But it is not at present with a view of following up any inquiry as to the prevalence of tea poisoning that this case is re-

ported. It is simply to record the symptoms of a single case with an apparently self-evident diagnosis, but of interest chiefly on account of its salient details.

Tea is "tasted" in the form of a simple infusion. An amount of the tea to be pronounced upon, equal in weight to a silver five cent piece, about 15 grains, is put into a small cup, and hot water is turned on to it. Having noticed the behavior of the leaf in water, the aroma in the steam, and a few minor particulars, the "taster" takes a full mouthful of the liquid and holds it in his mouth, repeating the process until his opinion as to its quality is formed. Some tasters swallow the tea and some spit it out.

My patient estimates that about half a pound of tea enters the mouth in a day. He has been engaged in this business about 8 years. The immediate effects upon him are as follows: In about ten minutes the face becomes flushed, the whole body feels warm or heated, and a sort of intellectual intoxication comes on, much the same in character, it would seem, as that which occurs in the rarified air of a mountain. He feels elated, exhilarated, troubles and cares vanish, every thing seems bright and cheerful, his body feels light and elastic, his mind clear with a great flow of ideas, and he has found from experience that the workings of his intellect are really more clear and vigorous than at any other time. This is not a delusion on his part, for at this time he can "talk a man over," and make a more advantageous bargain than at others.

At the end of about an hour's tasting a slight reaction begins to set in, some headache comes on, the face feels wrinkled and shrivelled particularly about the eyes, which also get dark around the lids.

At the end of two hours this reaction has become fully established, the flushed or warm feeling has passed off, the

hands and feet are cold, a nervous tremor comes on accompanied with great mental depression, and he is so excitable that every noise startles him; he is now in a state of complete unrest and mental exhaustion. He has no courage to do anything, he can neither walk nor sit down owing to his mental condition, and he settles into a complete gloom. His body in the meanwhile does not feel tired. Copious and frequent urination is always present, as also certain dyspeptic symptoms, eructations of wind, sour taste, etc.

The above described immediate effects follow a single afternoon's tea tasting. They may be summed up briefly as excited circulation, intellectual intoxication with actual increased vigor of mind power, increased urination, then a period of collapse indicated by cold extremes, tremor, mental irritability and anxiety. It will be several days before this condition of affairs is amended. At this time the temptation to take alcoholic stimulants is very strong.

The chronic effects are few and decided. Headache is frequent, principally frontal and vertical, a ringing and buzzing in the ears very constant, black spots often flit before the eyes and he sees flashes of light.

Vertigo also is very common, he cannot look up at a clock on a steeple without staggering.

Insomnia exists to a considerable extent. He seldom has a good night's sleep, dreams much, but his dreams are generally of a pleasant character, sees visions also when not sleeping.

Dyspepsia is more troublesome than any of the foregoing three symptoms. This the patient assigns strictly to tea tasting, since it is made worse by tea, and improves when he abstains from it, though now becoming confirmed.

His appetite is capacious, feels heavy at epigastrium, has eructations and sour taste, and finds that certain kinds of

food distress him. Has a frequent gurgling, and is in the habit of "working" his whole chest and stomach to make the gas pass on.

His mental condition is peculiar. He lives in a state of dread that some accident may happen to him; in the omnibus fears a collision; crossing the street fears that he will be crushed; watches the eaves of buildings as he passes along thinking a brick may fall and kill him, or a sign fall; under the apprehension that every dog he meets is going to bite the calves of his legs, he carries an umbrella in all weathers as a defense against such an attack. He is often afraid to enter his office for fear of being told that some one has failed; and in short, lives in a state of constant foreboding of some impending evil.

The left leg is more difficult to get along than the other; it is also numb at times; he is conscious of an unsteady gait, and at times the eyelids twitch.

The chronic effects above described as distinguished from the immediate effects are in brief vertigo, headache, insomnia, dyspepsia, mental depression almost amounting to delusions, and signs of an approaching paralysis.

I omit details of negative evidence indicating that otherwise than as related, he is in sound health.

A certain group of his symptoms point to hyperæmia of the brain, another to disorder of the digestive functions, and another to morbid alterations of intellection, mobility and sensibility, all taken together, presenting, as I think, a clinical picture of tea-poisoning, a conclusion I feel more justified perhaps, in accepting from the details of this one case, from the fact that I have personal knowledge of several almost identical cases, reports of which I hope soon to add to this.

II. Cure of Chronic Partial Eczema by Galvanism. (Eczema rubrum.)

Patient E. B., aged 70, had suffered for eight months with chronic eczema involving the whole palmar and dorsal surface of the last phalanx, and extending beneath the nail up to its base. In this latter position a constant purulent discharge was present. The end of the thumb was of a bright red color, "raw," cracked in painful fissures, and very sensitive to the touch. After five months of ineffectual treatment, the case came under my care as a very obstinate one. Most of the nail was easily cut away with scissors, and nearly two months were spent in fruitless efforts to cure the disease by the usual methods of procedure, consisting of both internal and external treatment, but to no purpose, since every apparent improvement was followed by a quick relapse.

Finally, with the case to be related of the cure of chronic ulcers in mind, galvanism occurred to me, and the following device was employed to apply it. A very large silver thimble was procured, a hole bored in its rim, and it was attached to a zinc plate by a flexible wire. The thimble was worn on the thumb, and kept in place by an elastic rubber strap carried up to the bandage which bound the zinc plate on to the arm. A piece of lint beneath the zinc plate was kept saturated with a mixture of vinegar and water.

After a few days the result of this treatment became very gratifying. The nail before thick, everted, and not in contact with its under matrix began to grow naturally and rapidly: the purulent discharge ceased, the fissures healed, the skin on the end of the thumb became white and firm, and still, now at the end of four months, remains so.

I am unable to refer to any authority for this treatment,

and do not know that chronic eczema has been previously cured by it; but one such result as above detailed, naturally suggests a more extended use of galvanism in similar cases.

CLINICAL CASES REPORTED FROM THE CLINIC
FOR DISEASES OF THE MIND AND NER-
VOUS SYSTEM OF THE UNIVERSITY
MEDICAL COLLEGE.

BY W. J. MORTON, M.D., CLINICAL ASSISTANT.

I. Chronic Ulcers Cured by Galvanism.

Patient, a woman aged 50, applied for treatment of two large indolent ulcers situated on the outer aspect of the lower third of the right leg. The ulcers were deeply excavated, their edges rigid, the adjacent skin œdematous and of a leaden color, the granulations pale and glazed; there were superficial varicose veins. Patient stated that these ulcers had been treated for the last seven years by every possible contrivance.

The larger ulcer measuring two inches in length by one in breadth, and half an inch in depth, was selected for treatment for the purpose of demonstrating, by means of a very simple apparatus, the efficacy of a weak but continuous application of galvanism in cases of this character, a means of treatment by no means new, but nevertheless apparently as much neglected, as if it had not already long been a part of the physician's armamentarium.

The application is thus made: A piece of thin silver plate is cut to fit the general outline of the ulcer and cover it; a hole is punched in its edge, and it is connected by a copper wire of any convenient length to a zinc plate of about the same size. The ulcer is filled loosely with charpie, the silver plate laid upon it and bandaged on; at

the same time the zinc plate is tied to the leg at a point higher up, a piece of lint saturated with vinegar and water having first been laid between it and the skin. The lint is to be kept wet with the same solution.

The apparatus as above described was applied to the patient. At the end of three days the ulcer had entirely filled up to the level of the general surface of the leg with healthy granulations, while its area was much diminished by a rapidly encroaching band of new skin; at the end of a week it was completely healed.

The other ulcer, about two inches distant shared in the activity of its neighbor, and began also to fill with granulations, though only to a moderate degree, establishing, however, a differentiation sufficiently marked to prove that the healing of the first was due to the specific and special effect of the means employed.

When last seen, at the end of a month, the ulcers remained healed.

Crussel, in 1847, seems first to have applied the electrolytical action of the galvanic current to the treatment of ulcers, using for his purpose the regular battery.

Spencer Wells contrived the simple arrangement above described, and concluded that the treatment by galvanism was the best known to him.

Influenced by the latter's success, Dr. Hammond had employed the same method with the best results, many years ago, at the Baltimore University College, and regretted that its practice had so largely fallen into disuse.

II. Case of Nervous Syphilis. Cephalalgia, Complete Ptosis and Paralysis of Muscles of the Globe.

Oct. 24th, 1878.—Patient, Margaret S., æt. 32, applied for treatment of excruciating pains in the head, vertigo and ptosis of the left eyelid. Her general appearance was

anæmic, though the face was flushed during pain. There were smooth, circular, pigmented scars on her legs and arms. At a point indicated by herself, over the region of the left anterior lobe of the cerebrum, pain could be produced by moderate pressure, or increased if already present. She has had, and still has, "dead, aching" pains in her shins, and the tibial regions are sensitive to pressure. She has increased pain before a storm, and is very susceptible at all times to impressions of cold air. She feels heavy and tired in her legs. Has had no loss of consciousness, loss of sensation, or loss of muscular power other than that about the face. Her mind is clear, and speech good. Before the occurrence of ptosis she saw double. She has not now the slightest volitional power over the eyelid. As regards the eyeball, motions upward, downward and inward were impossible; outward moderately good; of the obliqui impaired. A prolapse was noticeable, as well as marked dilatation of the pupil.

She gives the following history: She was married fifteen years ago; had had seven children; the first two, "seven month's" children, lived only three days; the next two died at the age of two years, and three are now alive but "sickly." Her husband had "a kind of scrofula" before marriage. When two years married an eruption came out on her arms, head and legs. She became very weak, her throat was sore, her hair fell out, had pain in her chest. The eruption left the scars now visible. She then got moderately well, without treatment. The pains in her head began about eight years ago; they were first "up her back" and in the back of the head. Her head was "pulled backward;" she had vertigo, and often staggered. These pains disappeared when she laid down and when she kept the head warm. She again got better without treatment, no-

ticing only a few years later a "beating" at the top of the head, and a steady pain in the left eyeball, but no ptosis. These symptoms in their turn disappeared.

The history of her recent attack is as follows: Two months ago severe pain in the forehead began, with a sense of traction across the bridge of the nose. In a month's time the pain became, as she says, "awful." It was situated chiefly in the left frontal region, and felt as if a tight band were about her head. The attacks were accompanied with a twitching of the under lip and the under lid of the right eye. The pain finally seemed to settle into the inner side of the left eyeball, which became very sore to the touch, and also extended down the side of the nose. It was worst at night. Gradually the eyelid began to fall, drooping a little each day, and ending in final closure.

Treatment.—Faradism to muscles about the eye. *R.* Potasii iodidi, saturated solution, gtt. xv., increasing by three drops daily. *R.* Strychniæ sulphatis, grs. $\frac{1}{32}$ injected subcutaneously between the eyelid and eyeball, in the manner first employed by Dr. Hammond several years ago.

Oct. 28th, (four days later).—Pain in head a great deal better; cannot yet raise the eyelid.

She has, on her own responsibility, bathed her head in hot water, and applied warm bandages, since she has often before obtained relief in this manner. She has, however, to-day much pain in her feet, shins and in the anterior portion of the thighs; the cold air outside increases very greatly the pain in her head.

Repeated the subcutaneous injection of strychnia, applied faradization, and continued the iodide of potash.

Nov. 1st.—Lifts the eyelids slightly. Both internal and inferior recti have recovered nearly normal power. Superior rectus still paralysed. Headache has wholly disappeared. No pains in shins.

Nov. 10th.—Eyelid now constantly in a half-raised position; all the muscles of the globe act well; no prolapse noticeable; occasionally a little pain in the head.

Dec. 4th.—Headache cured; no other pains remain. Eyelid raised to its natural height and no discoverable difference exists in the function of either eye. Strychnia and faradization were discontinued. The Iodide of Potash, of which she was now taking, 56 grains, three times daily was reduced to 15 grains, and patient given,

℞ Hydrarg. Bichlor gr. i.
 Aquæ ʒ i. M

Take ten drops three times daily. To be continued for six months.

Case III.—Nervous Syphilis; Paraplegia.

Daniel O'C., æt. 35, desires treatment for trouble with his legs. He cannot walk without a cane. His general appearance is anæmic and somewhat emaciated. His history is as follows: Was always well up to eight years ago when he got syphilis. Thinks it was syphilis because he had a small hard sore; a swelling in the groin which didn't break, and because the doctor told him he had that disease. He was treated and never had any eruption on the skin or elsewhere, and has never thought of it since, especially not as a source of his present trouble.

If we except a general induration of his occipital and cervical glands, the diagnosis of primary syphilis must rest upon this history alone. He first began to notice trouble in his legs about three years ago, felt as if his stocking were thicker under the right great toe, or as if his foot were greased on the sole: later the same feeling came in both feet, then his legs began to feel as if they were tightly encased in armor, and he found it difficult to walk steadily. Had also a feel-

ing of a constricting band around his chest. He had no sharp or other pains in the legs or back, nor troubles of urination or defecation.

The severity of these symptoms fluctuated considerably, so that at times he seemed nearly well. Lately his troubles have much augmented, his legs drag heavily as if "loaded with lead," the toes of his boots are pointed inward and are worn on their outer side, his gait is very unsteady, he is obliged to stand a long time before he can complete the act of urination, he is constipated, his legs are cold from the knee down and feel numb all the time.

Further examination seemed to give no indication of cerebral disease. As regards motility, it only remains to note a spastic contraction of the adductors of both legs, so strongly marked, that it required considerable strength to separate the legs a few inches at the heels. The extensor group of muscles of the lower leg respond very defectively to the stimulation of faradism. As regards cutaneous sensibility, impairment was obvious but not apparently in a just ratio to that of motility. Tests for pain, heat and cold, and conduction met with better response than that for locality with the æsthesiometer.

Asked to stand with heels together and eyes closed, his body sways about in an uncertain manner. He has no pain at any time. The tendon reflex is excessive.

Treatment.—Potasii Iodidi, grs. xv, three times daily, increasing by three grains daily, and Hydrarg. Bichloridi $\frac{1}{8}$ of a grain three times daily.

Feb. 20th.—Patient can scarcely walk even with the end of a cane. His legs seem to have less power, constipation persists accompanied by a sense of distention of the abdomen, no further trouble with the bladder. Feels drowsy and sleepy all the time, thinks his sight is dim. Now taking

Pot. Iod., grs. 41, three times daily, and same amount of the Bichloride of Mercury, as before.

Feb. 27th.—Patient's walking has much improved, and he feels altogether better. Has reached 48 grs. of Pot. Iod., three times daily.

March 3d.—Though not yet well, his recent rapid improvement encourages the hope that he soon will be.

CONTEMPORARY LITERATURE.

I. To the Legislature of New York :

Among the many indictments against the bad management of lunatic asylums, none that have come under our notice are so plain spoken and so trenchant as the one with the above title, just presented to the legislature of this State, endorsed with the names of many eminent physicians and other citizens. It was prepared by a committee of the New York Neurological Society, in accordance with a resolution of the Society, and was recently presented in the senate by Senator McCarthy, of Syracuse.

The petition of the undersigned Physicians, Lawyers and other Citizens of the State of New York, represents as follows :

“ There has lately sprung up a general and marked discontent in the public mind with regard to the management of our insane asylums. From the nature of the case, the internal mechanism of these institutions being more or less secluded from public scrutiny, it was not to be expected that the popular feeling could point to any special fault in the system as its cause. Like most popular movements, the agitation of the asylum question has, until quite recently, rested on isolated and flagrant instances of abuse, rather than on the great systemic defects of which these instances were but the outcome.

“ But within the past few years, members of the medical profession, whose studies led them to investigate asylums, without bias or prejudice, purely in the interests of medical psychology

and philanthropy, have made public charges against the system of asylum supervision and asylum management in this State which are deserving of notice.

"They merit special attention for the single reason, if there were no other reasons, that those now at the head of our asylums, have been either unable or unwilling to answer their arguments, or to disprove their allegations.

"Many of these defects, medical and administrative, have been admirably and fully set forth by Dr. H. B. Wilbur in his "Report on the Management of the Insane in Great Britain," published in 1876 and 1877. This writer institutes a comparison between the management of the insane in the two countries which is as humiliating as it is instructive.

"The following points are among the most prominent features of the pending inquiry. Some of them rest upon exact evidence, others can be substantiated by responsible members of the medical profession, and regarding still others, strong circumstantial evidence can be adduced. It is the purpose of the projected investigation to discern how many of the questions herein set forth can be satisfactorily answered under oath. We also believe that the points referred to by these queries are of the highest importance for the welfare of the unfortunate insane.

"QUESTIONS RELATING TO THE MANAGEMENT OF ASYLUMS.

"1. How many days in the year is the Superintendent actually and really on duty in his office or in the wards?

"2. How many days in the year is the Superintendent away from his asylum engaged in private business, in medical or medico-legal consultations, attending upon courts without an order from the Attorney-General or other proper authority?

"3. Does not the State (or city), in giving the Superintendent a fair or large salary, make a contract for the use of his whole time, usual vacation excepted?

"4. How often in a week does the Superintendent see and speak to *every* patient under his charge?

"5. How many patients in the asylum are seen only once a month, or less often, by the Superintendent?

"6. How frequently does the Superintendent make unexpected visits to his wards? How often does he make tours between midnight and morning, to observe the symptoms of some patients, and to see how nurses and watchmen perform their duties?

"7. How many patients are actually and really under the Superintendent's own medical treatment ?

"8. Does the Superintendent see and examine every new case immediately after admission ; and is he responsible for the registered diagnosis, and general treatment ?

"9. Does the asylum possess, and do its medical officers really use such common instruments as the thermometer, ophthalmoscope, æthesiometer, dynamometer, sphygmograph, microscope, faradic and galvanic electrical batteries, the speculum and uterine sound, chemicals for the analysis of urine, etc. ?

"10. Is feeding by force *always* done by a medical officer or in his presence, as it should be ?

"11. Is the Superintendent consulted whenever forcible restraint is required ; and is the duration, manner and result of this mechanical restraint duly recorded in a book kept for the inspection of the Commissioner in Lunacy and of the courts.

"12. How frequently does the Superintendent avail himself, for the benefit of his patients, of consultations with general physicians and surgeons, and gentlemen eminent in the several departments of medicine ?

"13. Do you ever employ the barbarous and injurious means of restraint known as a 'crib' ?

"14. Are undergraduates in medicine ever employed in your asylum as assistant physicians, or acting assistant physicians.

"QUESTIONS REFERRING TO THE INSPECTION OF ASYLUMS.

"1. Does the Commissioner in Lunacy give any notice of his coming to the officials of an asylum he is about to inspect ?

"2. Has the Commissioner ever visited asylums at unusual hours, as in the middle of the night or in the very early morning, in order to determine the usual condition of their wards ?

"3. Does the Commissioner ever go about an institution without company, or at any rate without a medical or other officer whose presence can prevent free speaking on the part of attendants and patients ?

"4. How frequently are inspections made in the various asylums ; and how many days in the year is the Commissioner in Lunacy engaged in private business not legitimately appertaining to his office ?

"5. Does not the State, in paying the Commissioner a fair

salary, make a contract for his whole time, customary vacation excepted?

"6. Was the present Commissioner appointed in strict accordance with the law which requires the candidate for this position to have been a 'physician of experience'?"

"Besides, your petitioners believe the following statements to be well founded. They refer to more strictly medical matters than the above-recited questions, yet we consider that if these evils exist, the State and the patients in our asylums are highly interested in their eradication.

"1. Superintendents of insane asylums are, nearly without exception, not chosen from among medical men who have pursued special studies in neurology at home and abroad, and who are well trained physicians, but from among assistant physicians of asylums who, after having been badly chosen (*vide infra*), have passed a number of years immured in an institution.

"2. Assistant physicians of asylums (future candidates for the position of superintendent) are nearly always men just issued from our too elementary medical schools; men who have not served in civil hospitals (which can be entered only by severe competitive examination); their qualifications are not submitted to any test; when in the institution they are not furnished with means of study (medical journals, books and instruments); and, inevitably, as years go by, they forget what general medicine they knew on graduating.

"3. Assistant physicians, moreover, are overworked, and wretchedly paid. Their time is taken up by visiting too many patients, by writing interminable, useless histories of cases, and by various 'official' duties, such as talking by the hour with friends of patients, receiving visitors, etc. The largest asylum under State management (in this State) has only four assistant physicians for between six and seven hundred patients. In a general hospital, like Bellevue or the New York Hospital, every division of from forty to eighty patients is officered by one attending physician (who really sees his patients daily) and three assistants, all graduates, selected from among a crowd of the best men by a severe competitive examination. And it must be borne in mind that in general hospitals there are, as in insane asylums, very many chronic cases requiring a minimum of care. From this comparative statement it is at once evident that in spite of

enormous outlays of money our insane asylums are indifferently officered.

"4. Superintendents and their assistants, with hardly an exception, are not versed in the new anatomy and physiology of the nervous system, the part chiefly concerned with insanity.

"5. Superintendents and their assistants, with hardly an exception, are not believed to be skilled in the modern methods of diagnosis and of post-mortem examination. Few of them are able to read in the original the invaluable contributions to insanity and its treatment which we owe to German and French scientific physicians for the insane.

"6. The little pathological work which has been done in our asylums at enormous cost has been of the most elementary sort, and has been ridiculed at home and abroad. With the liberal aid it receives from the State, the pathological laboratory in one of our asylums did not furnish the materials for successful competition for the great Tuke prize, for the best essay on the pathological anatomy of insanity, offered in England last year.

"7. In some of our asylums the pernicious practice of allowing undergraduates, accepted without *bona fide* examination, to act as assistant physicians, is tolerated. This is highly unjust to the patients, who have a right to medical attendance in the legal sense, and also to practitioners outside. The lunacy laws of 1874 provide that no practitioner can certify to the lunacy of a patient unless he have been three years in the practice of his profession ; and it thus happens that this experienced physician's diagnosis and certificate are in a measure subjected to the revision and control of men who have not yet obtained their degree, or of others who have just passed from the benches of the medical school to the asylum.

"In view of the above numerous reasons for believing that there exists gross mismanagement in the medical administration of insane asylums in this State, your petitioners do respectfully request that your honorable body appoint a committee for the examination of the management of all institutions for the care of the insane in the State of New York.

"And your petitioners will always pray, etc."

II. Report of the Committee of the Ohio Legislature on the Longview Asylum, at Cincinnati.

The following report of a committee of the Legislature of Ohio, on the Longview Insane Asylum, shows a condition of affairs disgraceful to the authorities, and for which it is to be hoped in the interest of humanity, some mode of redress will be found. It recalls to mind the worst features of the English and French asylums of a hundred years ago. It is fortunate that the State of Ohio has a legislature, and that legislature a committee not afraid of the superintendent.

We wonder what the "Association of American Superintendents of Insane Asylums" will say and do, relative to the member whose inhumanity and inefficiency are so thoroughly depicted in the report.

"REPORT OF THE COMMITTEE.

"To the House of Representatives, Sixty-third General Assembly :

"The committee of the House of Representatives, appointed under House resolution No. 160, adopted March 7th, 1879, requiring them to immediately investigate as to the truth of certain charges of inhuman and cruel treatment inflicted on the insane patients at Longview Asylum, and to report to this House at as early a day as practicable, by bill or otherwise, having made such investigation, would respectfully report :

"That they visited Cincinnati for the purpose of taking testimony bearing upon the subject, arriving in the city on the 10th instant and remaining there until the 14th, engaged in the examination of witnesses. They examined forty-nine, selecting such persons as would be likely to be possessed of accurate information touching the subject matter under investigation, derived from personal observation or from personal experience. From the nature of the case the persons having the knowledge of the conduct of the Asylum were such as have been inmates of the institution, or such as have been, or are, employed in or about it, regularly or occasionally. It is such witnesses as these that your committee examined. These persons gave their testimony,

which is embodied in and made part of this report, in a spirit of candor, without apparent malice or prejudice, and in such a manner as to make a deep impression upon the committee, and to convince them of the truthfulness of the statements made. Not all of the witnesses had equal sources of information, but among those who had had about equal facilities for obtaining knowledge of the subject, the force of the testimony was greatly emphasized by being corroborative and cumulative. The evidence of persons at present employed in the Asylum is of special value, being in the nature of unwilling testimony. The employee always stands in some fear of the employer, and the testimony of the former against the latter is not easily obtained, but when obtained has added weight. Your committee in the examination of these and all witnesses pursued such a course as was in their judgment adapted to eliciting the whole truth, and to facilitate the investigation, having no desires in the premises save to make a full and impartial investigation of the conduct of Longview Asylum, as directed by this House. Your committee return from their labors, as they went to them, without personal ill-will toward, or prejudice against, any officer connected with the institution; but they are unanimously of the opinion, and they so report to this body, that the charges of inhuman and cruel treatment of the unhappy inmates of that Asylum for the insane are sustained by the evidence. The hapless ones whose reason is dethroned, should, by reason of their helplessness, command the greatest care of their guardian, the State. If the unfortunate inmates of this institution are cruelly gagged, and beaten, and ducked, and ill-fed, and scantily clothed, and 'taken down,' and 'spread-eagled' (the technical names for inhuman punishment), and overworked, and subjected to various needless punishments of revolting severity, and become the victims of inexcusable neglect, and in many cases left in their last moments with no hand to administer to their dying wants, and these facts come to the knowledge of the State, it is the State that is thereafter guilty of this inhuman and cruel treatment, should it occur. A retreat for the insane is not a State Prison, and Penitentiary treatment is highly inappropriate in a house for those whose only offense is that their minds are gone. Such modes of treatment as have just been mentioned would be of doubtful humanity and propriety in an institution whose confinement is the most ignominious punishment, save

capital punishment, and is certainly shameful and cruel to the last degree in an institution where confinement is meant to be a mercy ; but the evidence submitted herewith shows that the cruelties have been inflicted upon the unhappy inmates of the Long-view Asylum."

"According to the testimony of several eye-witnesses, a punishment frequently and sometimes even gleefully resorted to by attendants in this Asylum, is one known as 'taking down.' 'Taking down,' in the words of the testimony, consists in tripping or throwing the patient to the floor, holding her down (for 'taking down' is a female punishment, the men being usually knocked down) with the knee on on the chest, while another employe gags the patient, and still another holds the patient's hands. The patient is held down till she is quite weak and exhausted, becomes purple in the face and the breath almost gone.

"Another punishment is to 'make a spread eagle of a patient.' This consists in stripping a patient to nakedness and making attendants whip them with wet towels. This is a punishment inflicted for a refusal to work. It is described as very painful, and is practiced because it leaves no marks.

"There is testimony as to ducking, kicking, beating, black eyes and other marks of cruelty. It is in evidence that weak patients are overworked and ill inmates have not been properly fed and cared for. Hard work has been needlessly compelled in a room in which the mercury stood at one hundred and twenty degrees. The use of 'cribs' and the 'strong room' is shown. Loathsome vermin in loathsome numbers have been allowed to accumulate upon the bedding, the apparel and the person of patients. All of these things and others told with painful plainness is the testimony that is made a part of this report. A repetition of the details is neither necessary nor pleasant. It is not claimed, and it is not essential to show, that all of the inmates of the Long-view Asylum are subjected to the cruelties that it is shown have been inflicted on some. If anyone is subjected to such treatment it is, in the opinion of your committee, a matter for the considerate attention of this House and of the State.

"There is evidence to show that a dissecting-room was fitted up in the Asylum without the knowledge of the Board of Directors, but this is a matter perhaps not within the scope of the resolution of the House under which your committee are acting.

Some testimony is also to be found relating to the intoxication of the Superintendent of the Asylum, but as this has reference to but one occasion, and as this matter, too, is not embraced in the resolution authorizing this committee, they do not attach to it any special weight or importance. The profanity of some of the attendants is shown by the evidence, but this is less inhuman and cruel than the physical violence used by the same attendants upon the patients whose mournful lot should kindle no words but kind ones, and invoke no treatment but that of tenderness. That the Superintendent has been guilty of inattention to his duties and gross neglect is one of the conclusions forced upon your committee. The duty of this House in this matter would, in the opinion of the committee, be essentially the same whether the official head of the Longview Asylum has or has not been ignorant of the practices proved in the accompanying evidence, though the testimony seems to the committee to entirely destroy the suggestion that the various hideous things were done without his knowledge or consent.

"Your committee were authorized to report by bill or otherwise. They deem it best to place in the possession of the House the evidence they have accumulated, with some of the conclusions to which it has irresistibly driven them, leaving to this body to determine, upon the information, what action shall be taken. That some action, looking to the reorganization of Longview Asylum, is imperatively demanded, your committee unanimously agree and report. They trust that the deliberations of this body upon a subject that challenges the most humane impulses will result in some measure, or measures, creditable to the State, and such as will tend to ameliorate the melancholy lot, so hapless and in most cases so hopeless, of those whose wandering minds and feeble frames should command nothing harsher than the gentleness of them who do justice and love mercy.

JAMES A. ESTILL,
HOMER S. QUINN.

"As a member of this committee, I beg leave to report, that in my judgment the testimony is of such a character as to most imperatively demand, for the honor of the State and in justice to the Board of Directors and Superintendent of the Longview Asylum, additional action on the part of this body; and I beg leave to recommend the appointment of a committee of three

persons, to act in conjunction with a Senate committee whose duty it shall be to make such further investigation, or recommend such additional action as shall seem to said joint committee wise and proper."

JAMES B. PAYNE.

III. Twenty-fourth Annual Report of the Board of Trustees and Officers of the Dayton Asylum for the Insane.

It is pleasant to know that all the superintendents of insane asylums are not constituted after the type of the one who presides over the institution at Longview. Wallace of Texas, Chapin of Willard, in this State, Earle of Northampton, Mass., Stearns of Hartford, Conn., etc., and many others who might be mentioned, belong to a very different order, and to them must be added, Dr. Morse of Dayton, Ohio, whose views as enunciated in the report, the title of which is given above, are in marked contrast to those which the "Association of Superintendents" entertain on a most important point of discipline and therapeutics—mechanical restraint.

Dr. Morse says :

"MECHANICAL RESTRAINT.

"When I came here, as you are aware, restraint was used as freely as the most urgent advocate of it could desire. The strait-jacket has been used only in two cases for several months, and this was to prevent injury to a hand, in one case, where it became impossible to keep dressing upon it, the patient constantly pulling open a wound received from a piece of broken glass—and a case where sleeves were employed at night, as we would in private practice for surgical reasons. There is no more destruction of property than before ; in fact, it has been reduced. There is not one-fourth as many broken dishes as when restraint was freely employed. Restraint is more relief to attendants than to patients. When they can put a patient in sleeves, lock up at will troublesome ones, they can withdraw to their rooms and enjoy a comfortable sleep, if the sun and flies do not prevent. When attendants know

that they must get along with patients and control them, there is less trouble in the wards. The most boisterous and uncontrollable set of patients I ever saw, where the noise was intolerable, was in an institution where I saw several patients in a ward with sleeves on, and as many more fastened to restraining chairs. I have read what has been written in asylum reports, in works and journals upon the subject, and know what is claimed by those who advocate restraint and the contrary. It changes in no way my views, I know, that with proper care and attention on the part of attendants, most cases under restraint that I have seen in other asylums could be better managed without than with a jacket. The damage done to property, and injuries inflicted, are not prevented by restraint, for, in many cases, those not supposed to require restraint, under momentary impulse do great mischief. There is no better way to guard against it than for attendants to be attentive, careful, kind, and ever on the watch.

"Of late much has been written upon this subject, and considerable feeling manifested, in some cases causing the writer to view the subject wholly from his standpoint, and make assertions and accusations uncalled for and unjust to those of opposite views. As upon all questions, so in this, the views of extremists must be tempered by excluding those things said which are only the result of prejudice or feeling. On the contrary much has been written by those seemingly unprejudiced, who desire to give the subject a fair consideration."

Dr. Morse after quoting Drs. Lindsay and Stearns to the effect that mechanical restraint should be employed as sparingly as possible, continues :

"The seclusion of patients and restraint I have kept under my own personal control. If a patient becomes unmanageable, in the hall with other patients, the attendants are required to report the same at once to me. If of such a nature that immediate action is necessary, seclusion is practiced, but as soon as secluded the fact is at once reported—I then determine what shall be done.

"My experience has been that almost, without exception, not an accident or injury has resulted with a case that restraint would have been applied in, however freely used in the institution. Patients sometimes strike—those who have done so here, and at the Columbus Asylum while I was there, were patients, as a rule, that violent conduct was not expected from, for from those we

were suspicious of care was taken to prevent any injury from them. Thus a man who has never manifested violent propensities will not be watched as closely as one who has, nor would he be kept in sleeves, and hence, in either case, might strike before it could be prevented. The same may be said of suicide. Patients who are melancholic, or who have shown suicidal tendencies, are cared for with respect to this propensity, yet in one case under my care, where a patient had been in the house three years and no suicidal disposition manifested, the patient hung himself with a sheet fastened to a bar of the window, although it was scarcely more than two feet from the floor. He slept in a room with another patient—was not suspected of any such tendency—hence, no matter how freely restraint had been employed in the house it would not have changed the result in this case, for the man was in the best ward in the house and would not have been restrained, there being no indication previous to the suicide.

“There are other objections to restraint. If patients restrained are not watched carefully, they may be imposed upon by other patients, or may kick or bite other patients themselves. Some will butt with their head. The first visit I made through the wards of this house, a female patient in sleeves ran and attempted to butt me in the stomach with her head; this to a person weighing two hundred and sixty pounds is not a pleasant sensation. The sleeves were shortly removed; the patient, then in a back ward, was soon able to move to a front ward, and recovered.

“The success of non-restraint depends no more upon the patient than the attendant and ward physician. If the physician and supervisor see that attendants perform their duty, the success will be greater. If non-restraint is practiced, and the superintendent is not sustained by subordinates as well as attendants, it will fail. If patients who are troublesome and require care are provoked into improper conduct to secure the use of restraint that the attendant may be relieved, then other cases will follow, and the result will be that instead of caring for the patients the attendants will endeavor to convince you restraint is necessary by the amount of mischief done by patients—they taking no pains to prevent it. To make non-restraint a success, no attendant should be employed who has been employed where restraint is practiced. The superintendent should select those who will accept his views and educate them to them. I am satisfied that, as a rule, this will be found correct; there are exceptions to it as to other rules.”

With a few more such superintendents as Dr. Morse the time is probably not far distant when the tone of thought held by the majority of medical officers of American asylums will be radically changed. Hitherto very few of them have been able to divest themselves of the idea that restraint by means of various mechanical contrivances including the "Utica crib," was the most effectual means of preventing violence on the part of all lunatics. It has seemed to be impossible for them to believe that the mere circumstance of such restraint is in itself an incentive to violence in an insane person, just as it would be in a rational individual knowing himself to be unnecessarily pinioned or stretched out at full length on his back, within the bars of the "crib." They have ignored all the teachings of Pinel and Connolly on this subject, while the rest of the civilized world has been improving them to the advantage of those so unfortunate as to be the subjects of mental alienation. Dr. Morse's experience and practice will fall unpleasantly upon many unwilling ears, but we are very much mistaken if they do not prove good results even in quarters from which most opposition to rational therapeutics in the treatment of the insane, has hitherto been manifested.

NEUROLOGICAL CONTRIBUTIONS

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Fructu, non foliis arborem æstima

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THE CONSTRUCTION, ORGANIZATION AND EQUIPMENT OF HOSPITALS FOR THE INSANE.*

By WILLIAM A. HAMMOND, M. D.

PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM IN THE UNIVERSITY OF THE CITY OF NEW YORK AND IN THE UNIVERSITY OF VERMONT, ETC.

IF we take a retrospective glance at the subject of lunatic asylums, we cannot fail to be forcibly impressed with the idea that until within a comparatively recent period the notion which prevailed in constructing, organizing and equipping them, was that the insane person was regarded as a criminal, his dwelling a prison, his directors and attendants jailers, his means of cure, chains, bars, and punishments of various kinds.

Less than seventy years ago a lunatic named Norris, an officer of the British navy, was confined in the great mad house Bethlem. For a threat of violence against the physician Dr. Haslam, he was subjected to restraint of such a character that we wonder now how the mind of a humane physician as Dr. Haslam undoubtedly was, could work out the details. An iron collar was put around his neck, another broad and strong band of the same material encircled his body, his arms were confined in like manner, and the bands around them were riveted to the one that was fastened about

* Read by invitation before the Connecticut Medical Society, at Hartford, May 29, 1879.

the chest; the ankles were fettered and then the neck-collar was connected by a chain six inches long with an iron ring which slid up and down on a stout bar fixed to the wall at the head of his bed. It was impossible for this unfortunate wretch to lie down, to stand up, or in fact, to assume any other position than that of sitting on his bed of straw, and yet he lived in this way for nine years in a stone cell.

In Dr. Mead's time lunatics were beaten as a therapeutic measure. Cullen recommends the infliction of corporal punishment as an effectual means of rendering them rational and of impressing them with terror. Dr. Haslam,* while deprecating resort to such harsh measures, nevertheless says:

"In the most violent state of the disease, the patient should be kept alone in a dark and quiet room, so that he may not be affected by the stimuli of light and sound, such abstraction more readily disposing to sleep. As in this violent state there is a strong propensity to associate ideas, it is especially important to prevent the accession of such as might be transmitted through the medium of the senses. The hands should be properly secured and the patient should also be confined by one leg; this will prevent him from committing any violence. The more effectual and convenient mode of confining the hands is by metallic manacles, for should the patient, as frequently occurs, be constantly endeavoring to liberate himself, the friction of the skin against a polished metallic body may be long sustained without injury; whereas excoriation shortly takes place when the surface is rubbed with linen or cotton."

And this was not all; the mind was worked upon and tortured, and deceptions of various kinds were considered proper and curative. Thus Dr. Cox † says:

* Observations on Madness, etc. Second edition, London, 1809, p. 289.

† Practical Observations on Insanity. London, p. 28

“ The conscientious physician, in the execution of his duty, attempting the removal of these deplorable maladies, is under the necessity of occasionally deviating from the accustomed routine of practice, of stepping out of the beaten path, and in some cases that have resisted the usual methods, is warranted in adopting any others that promise the smallest hope of success. Thus the employment of what may be termed pious frauds, as when one simple erroneous idea stamps the character of the disease, depriving the affected party of the common enjoyments of society, though capable of reasoning with propriety, perhaps with ingenuity, on any subject not connected with that of his hallucination, the correction of which has resisted our very best exertion, and where there is no obvious corporeal disposition, it certainly is allowable to try the effect of certain deceptions contrived to make strong impressions on the senses by means of unexpected, unusual, striking or apparently supernatural agents; such as after waking the party from sleep, either suddenly or by a gradual process, by imitated thunder or soft music, according to the peculiarity of the case; combating the erroneous, deranged notion either by some pointed sentence or signs executed in phosphorous upon the walls of his bedchamber, or by some tale, assertion or reasoning, by one in the character of an angel, prophet or devil; but the actor in this drama must possess much skill and be very perfect in his part.”

I do not quote these passages for the purpose of producing a sensation. If that were my object I would only have to ask your attention to the horrible instances of mismanagement and cruelty in the treatment of lunatics which within the last few months have come to our notice in connection with asylums in New York, Ohio and Minnesota. I simply desire to impress upon your attention the fact that

Dr. Haslam and Dr. Cox were able and conscientious physicians, who recommended what they thought were proper measures to be used in the treatment of lunatics, without an idea that they were wanting in humanity or deficient in sound therapeutical knowledge. Dr. Haslam condemns Cullen and Mead for their advocacy of flogging, and laughs at Dr. Cox for devising a system of mental tortures ; but he sneers at Pinel, who went a step in advance of them, and cast off the chains and manacles from the lunatics of Paris.

In our own day a like drama is being performed. No superintendent of an asylum for the insane advocates either Dr. Cox's means of exciting terror or Dr. Haslam's means of restraint, and yet they, some of them, use the camisole and other mechanical means for confining the body and see in the Utica crib not only a humane restriction but a valuable means of medical treatment.

And thus we may be emboldened to hope that the reforms which sociology, humanity and medical science demand shall be made in the treatment of the insane will ere long be brought about. The world does move not only physically, but intellectually. What was sound social economy fifty years ago is nonsense now ; what was humanity then is cruelty now ; what was thought to be the perfection of medical science then would be evidence of the most deplorable ignorance now. And fifty years from this time our successors will take our most cherished theories and practices, and show how lamentably they fall short of the ideal of that day. Indeed, they may even come to the conclusion that asylums are but sorry substitutes for the skill and care which should be exercised towards lunatics in their own homes, and that they, no more than other hospitals are suitable places for those who have relations and friends willing to take care of them.

In the few remarks which your kindness permits me to make to you, I shall touch briefly upon the three heads embraced in the title of this paper. The questions which concern them are now attracting a great deal of attention both from physicians and laymen, and it may be, that I may be enabled to offer a few suggestions towards their elucidation, not altogether without value.

There seems to be no good reason why a hospital for the insane should differ essentially in its construction from one intended for any other class of invalids. The principles as regards ventilation, heating and general arrangement should be the same. Now it is well established that large, continuous buildings are not the best for hospital purposes. The experience gained during our late civil war settled this point once and for all. The greater the isolation of the several structures entering into the composition of a hospital the greater the health of the inmates. Something however, must be sacrificed to convenience of administration. A central building for administrative purposes, around which the buildings intended for the patients are grouped, would seem, all things considered, the very best possible system for securing facility of direction, and the most favorable sanitary conditions for the inmates. All the buildings should be plainly but strongly constructed. Turrets and towers, pinnacles and marble columns are out of place. A hospital for the insane should in all its parts be as much like a modest private residence as possible. It should be such a structure as will cause the lunatic to feel as though it were a home for him. It should neither present the appearance of being a prison nor a palace.

All its buildings should not be alike either in size or plan. Preferably they should be of one full story with basement and attic, for the various offices and storerooms necessary.

At most, they should not be over two stories in height. Some should be built with a view to the reception of cases of acute mania; others for patients whose insanity is of a more chronic form, or who are approaching convalescence.

By this plan more exact classification of patients, than is now admissible could be carried out, and as a consequence greater facility of administration. Probably nothing has a more unfavorable influence upon the mind just emerging into the light of reason than to be subjected to the torture of constant association with others raving in the delirium of acute mania, or weeping and sobbing and groaning in the despair of acute melancholia. Again, those who are only partially deranged, or whose intellect is still trembling in the balance, if sent to asylums at all, (and I am decidedly of the opinion that such should be kept at home if they have homes), are invariably rendered worse by being confined in the same rooms with noisy lunatics, who are constantly thrusting their delusions at all with whom they come in contact.

Some of the buildings—those intended for the furious cases—should, perhaps, be so arranged that the patients could not injure themselves by breaking the glass of the windows or throwing themselves from them. The best contrivance is a wire netting placed before each window. Bars should, if possible, be avoided. As soon as the patient begins to exhibit a sufficient degree of restraint over himself he should be removed to a room in which the windows are free of netting or bars. Indeed I am not quite sure that they might not be dispensed with in all cases, as they are in some asylums.

For the chronic insane the system should be still further extended. With reference to this subject, I have read with great interest the discussion which has recently taken place

in this State relative to the construction of additional hospital buildings for the chronic insane poor, and I do not hesitate to give my unqualified adhesion to the views enunciated by Drs. Rufus Baker and D. A. Cleaveland in favor of the cottage system. Dr. Shew has, with great force, combated the ideas of these gentlemen, but has not, I think, successfully controverted the arguments they have adduced. He has brought forward the instance of Gheel, but Gheel is not a fair example, for it is not based on the cottage system at all, but on a plan altogether different.

Gheel is a little town in Belgium of about 10,000 inhabitants, the people of which, have for many centuries received the insane into their families, caused them to live as they themselves lived and to labor as they labored. "Thus," says Foville,* "there is constituted a phenomenon of which the world affords no other example, of a whole population of lunatics living sociably, and with every appearance of liberty, in the midst of a people who are accustomed to watch over and make use of them, and who experience in regard to them no feeling of fear or antagonism."

But Gheel, although not, as we shall see, the best of its class, is better than close asylums, and as it has undeservedly, I think, been censured by Dr. Shew, I am tempted to adduce some evidence of the influence it has exercised over the system of management of the insane.

Dr. Shew † says :

"The colony at Gheel, consisting entirely of family care, has been in existence since the eleventh century, but it has found no followers. Situated at a point almost central, between France and Germany, it has remained almost as un-

* *Les Aliénés : étude pratique sur la législation et l'assistance qui leur sont applicable.* Paris, 1870, p. 181.

† What can be done for the Indigent Insane ? p. 6.

noticed as if it were unknown. Is it possible that the physicians and philanthropists of those countries have been thus long groping in the dark? No, gentlemen, the cottage system has been tried and it has failed to meet the requirements."

Now let us take the evidence of Dr. Amédée Pain,* a French alienist of distinction, relative to Gheel and to its influence:

After speaking of the benefits to be derived from sound moral and hygienic treatment, and censuring the Russian physicians who subject the lunatics under their charge to all the rigors of a strict military discipline, M. Pain says: "The colony of Gheel, in Belgium, is the most ancient application of these principles of liberty, and we must admit that it has been in our own day the point of departure for a great reform in the treatment of mental alienation. Let us briefly describe it. In the northern part of the province of Anvers, in the midst of the plains of the Campine, are scattered seventeen hamlets which, with the principal village, Gheel, contain a population of 11,000. Of these, 800 are lunatics living with and under the direction of heads of families who are called nurses. Each house receives one or more lunatics according to the resources which it offers for accommodation, and according also, to the aptitude and moral qualities of the nurse. A medical director has control of the management. The patients take part in the work of the family and of the village, and also in the amusements. When not occupied they go freely about the streets and the country, watched more or less by the inhabitants, who assist each other when there is any special reason for so doing, making use then of various restraining measures, especially

*Nouveau dictionnaire de Médecine et de Chirurgie pratiques. Paris, 1865, t. iii. Art. Asiles d'Aliénés, p. 520.

of clogs or fetters on the feet or hands. An infirmary, the sole vestige of a close asylum, receives the worst cases.

"The Belgian colony has been the subject of numerous essays at home and abroad. It has found enthusiastic admirers and implacable detractors. The truth is to be found between these two extremes.

"Absolute liberty is the sole remedial measure made use of at Gheel. The valuable resources of the asylum system, the regularity, the discipline are entirely set aside and replaced by the exciting qualities of social life; for the gentle and consoling influences of the family are not to be attained by the hearth-side of the father-nurse.

"The past of Gheel appears to us much more wonderful than its present, when we recall to mind the condition in which lunatics formerly were, even in our own country—how they were either treated in the most odious manner, or else culpably abandoned to themselves. So that while recognizing the imperfections of the Belgian colony, we cannot refuse to it the very great merit of having initiated the measure of liberty which the insane now enjoy in asylums, and of having contributed to the propagation of the idea of insane colonies of which it is the imperfect image. Quite recently, in a scientific congress, a discussion took place relative to the different methods of assistance for lunatics, and learned physicians came from all parts of Europe to give their opinions on a question in which all mankind are intensely interested. The difference of opinion not only concerned the proportion of lunatics that ought to be confined and that ought to be allowed to go at large. Bulkens and Mundy, ardent apostles, and convinced of the advantages of the family system, presented Gheel as an example to be followed, the type to be imitated, but all their efforts did not suffice to conquer the repugnance of those

who, like us, think that the success of Gheel is due to particular conditions, which could not be found elsewhere."

We thus find that M. Pain differs from Dr. Shew in his estimate of the influence of Gheel.

And when we go farther in our study of the subject, we find that there is a cottage system to which M. Pain and many other European alienists give their unqualified approval. And this has its type in the colony of Fitz James, a dependency of the insane asylum at Clermont.

This institution, says M. Pain, was founded in 1847, and takes its name from a neighboring village. The general appearance is that of a beautiful and extensive rural estate. Nothing there recalls the idea of confinement or seclusion. The colony is divided into four sections, 1. the administrative department, where are located the superintendent and the male paying patients; 2. the farm, where the colonists live; 3. the house in which the female paying patients reside, and 4. the buildings occupied by the laundry and laundresses. At the farm are all kinds of agricultural implements. A steam engine works the mill and other machines, such as straw and root-cutters, etc.

The establishment contains over 300 lunatics, embracing convalescents and acute and chronic cases. Of these there are fifty paying patients, who do but little work. The labors of the farm and laundry are carried on by about 170 men and 90 women, the latter being only employed in washing. There are forty-five employees. Says M. Pain: "It is a wonderful thing to see with what eagerness those patients who know nothing of agricultural work, accept laborious occupations. Influenced by the attractive details of his new life, the lunatic feels that he is again an active member of society. The regularity of the life, accompanied as it is by existence in the purer air of the fields,

harmonizes the functional operations of the system, re-establishes the strength, and inures greatly to the advantage of the very generally depressed state of health. We must also add to all this the immense benefit which results from the communication which is constantly going on between the asylum and the colony, and from which many medical indications result, constituting in our opinion the most valuable resources for treatment. Influenced by example, the melancholic, little by little, emerges from his torpor; under the genial sky he takes interest in his domestic animals, gives tender care to his plants, and finally breaks loose from his sombre pre-occupations. Idiots and imbeciles become docile and laborious workmen. And the active and disciplined life of the colony quickly metamorphoses the lunatic regarded as incurable and carefully watched as dangerous; and if there is not always a cure, there is at least some pleasure given to those heretofore abandoned by science. There has never been a suicide to sadden the life at Fitz James, and escapes are more rare than at asylums where every obstacle to flight is religiously interposed."

And there is much more to the same effect.

And M. Brierre de Boismont, himself a distinguished chemist and superintendent of a lunatic asylum, visited Fitz-James, and made a special report to the Academy of Sciences on "Colonization applied to the treatment of lunatics."* He found no sign of mechanical restraint in the halls, the sleeping apartments, the farm-houses; not even a gate or door was guarded; there were no locks, no bolts, no bars; everything was open, and every man and woman was free.

What was the effect of this liberty? Were there broken

* "De la colonisation appliquée au traitement des aliénés." Cited in the *Journal de Médecine Mentale*, t. 1, 1861, p. 227.

ribs and murders and suicides, such as so frequently occur in our asylums where restraint is practiced? Nothing of the kind has ever, since its foundation in 1847, happened to disturb the peace of Fitz-James or to call forth the disapprobation of humanitarians. On the contrary, as M. Briere de Boismont declares, he saw fifty women, for the most part affected with acute mania, and who would under our system have been agitated and delirious, working in the country with all the order and assiduity of sane persons. He walked among them in company with some other gentlemen, and there were no exclamations, no indiscreet gestures; they were not even noticed, and not one quitted her work. "Animation," he says, "beamed on their countenances, and even the demented were, as it might be said, galvanized by liberty into reason. A work involving much labor and expense was systematically accomplished under excellent economical conditions by these fifty robust women, incapable of conforming to the rules of an ordinary workshop, and who, if left to themselves, would have afforded a spectacle of disorder, probably requiring measures of restraint."

Fitz-James is a true school of agriculture. All needful agricultural implements are unhesitatingly put into the hands of the patients, who use them not only to the profit of their mental condition, but for the acquisition of knowledge useful to them when they are discharged cured, as many of them are.

A circumstance which M. Briere de Boismont regards with peculiar satisfaction is the distance of the colony from the asylum, and thus, as he says, the charm of liberty is increased in an atmosphere not loaded with painful impressions to revive the feelings of captivity; of disease, or of the sufferings of others more unfortunate.

But I do not feel that I can add anything on this point to the admirable paper by Dr. Rufus Baker on the "Management of our Indigent Insane," read before the Committee on Humane Institutions of the Connecticut Legislature. He has shown what are the opinions of some of the most eminent alienists in Great Britain and the Continent of Europe, on the subject of cottage asylums, and has also called attention to the fact that even in this country, which, of all others, has during the last twenty-five years shown least progress in the hygienic and medical management of the insane, some advance has been made in this direction.

In regard to the organization of lunatic asylums, there is much to be said, and it is just here that reformation must begin if we expect to do much towards alleviating the condition of the insane, and rehabilitating them, as it were. In a paper which I read a few months ago before the Medical Society of the State of New York, I requested special attention to this point, and the hundreds of letters I have received from eminent physicians in all parts of the country convince me that the seed then planted has taken root, and will grow to full fruition. The absolute and irresponsible power of the superintendents must be taken away, and hospitals for the insane must be organized exactly as are all other hospitals. There must be resident physicians or *internes* to carry out the directions of a corps of visiting physicians and surgeons, constituting the medical board. No reasonable person can doubt the advantages of such a change. The feeling of mystery which the public now entertains in regard to insane asylums would disappear; there would be a body of men charged with the medical supervision of the institution and its inmates, and with no other duties. There would be a warden or a steward, whose duty it would be to look after the turnips and the visitors, and

the politicians and the legislators, and who would thus relieve the medical administration of some of the most arduous of its labors as at present organized.

Formerly when the subject of insanity was but little understood by the great body of the profession, there was some excuse for the existence of the superintendent, but now that psychological medicine forms a part of the curriculum of all the more prominent medical schools, when there are many journals especially devoted to it, when even almost every number of the general medical periodicals has one or more articles on this subject, and when the best contributions to the science come not from the officers of asylums, but from those who have nothing to do with such institutions, it is time to change all this, and to do away with an office which is simply a reminder of the ignorance of a former age. I do not believe there is a single asylum in the country which could not be supplied with competent medical officers to the great advantage of the asylum. Acts of tyranny and oppression on the part of attendants would be almost impossible, and there would not be, as is now too frequently the case, attempts on the part of the asylum authorities to smother investigation. Within a few weeks past a petition embracing the most serious charges against the asylum management of the State, and signed by some of the most eminent physicians of the city of New York and Brooklyn, has been presented to the legislature of New York. Instead of courting an investigation, as persons knowing the untruth of the charges would have done, the whole force of superintendents was almost to a man in Albany in attendance before the committee to which the memorial had been referred, and using every effort, personal and political, to prevent any inquiry. Have not these superintendents lost their heads, if not

officially (and it is to be hoped that ere long they will fall also) at least mentally. For if any course of conduct could especially lead to their destruction, it was the one they adopted.

Is it asking too much of this society to request that it will take some official action on this point? A recommendation to the authorities from a body so eminent as that which I have the honor of addressing, could scarcely fail to exert an overpowering influence.

In the matter of the equipment of lunatic asylums in this country, what do we see with but few exceptions? Utica cribs, camisoles, muffles and other means of restraint, but no ophthalmoscopes, no æsthesiometers, no sphygmographs, no dynamometers, no thermometric apparatus for ascertaining the temperature of the brain, no complete electrical apparatus, and very few books in the medical libraries, unless the *American Journal of Insanity* can be dignified by admission into this category.

Probably of all the means of mechanical restraint yet devised, the crib is the most injurious. "O Liberty!" cried Madame Roland, on her way to the scaffold, "how many crimes have been committed in thy name." May we not say when we look at the Utica crib, "O, humanity! how many crimes have been committed in *thy* name?" for as scourging and chains and dungeons and gags were once employed against the insane on the ground of humanity, so is the same plea urged in favor of the Utica crib. Darwin the elder invented the revolving bed upon which the lunatic was placed with his head to the periphery, and which was then set in rapid motion on a horizontal plane. The blood was thus driven into the cerebral vessels, and a state of stupor induced, which was considered to be highly advantageous and curative. Yet Darwin was undoubtedly a

humane man. Aubanel invented the crib. It passed out of notice, and was never known in this country till adopted at Utica. Aubanel was probably a humane man, and those who use his invention in our day would probably resent any imputation of inhumanity, and yet the most inhuman of all the attributes of man is ignorance, and the crib is the offspring of ignorance so profound that its employers seem to be proof against all arguments based upon a knowledge of the anatomy, physiology and pathology of the nervous system.

As there may be some here who have never seen this piece of furniture let me briefly describe it :

It consists of a bedstead similar in form to a child's crib and like it, having slatted sides and ends. But unlike the child's bed-place it is furnished with a lid also of slats, and sometimes these are of iron. This lid is on hinges, and it fastens with a spring, or more frequently with lock and key. In neither case can it be opened by the unfortunate inmate.

Into this receptacle the maniac whose cerebral blood-vessels are gorged with blood, and whose whole aspect is that of a person suffering from cerebral hyperæmia or congestion is put, stretched out at full length with less than a foot of space between his body and the top, and of course unable even to sit up or to assume any other position than the recumbent. Is it a matter for surprise that patients have died suddenly while subject to such restraint? Why, it is only a little better than hanging them up by the heels!

It is a matter of experience, and for this I have the assertions of asylum officers, that patients who were previously maniacal while in the cribs, dashing themselves with violence against the bars like a wild lion against its cage, when first confined, have become entirely quiet and composed on being taken from the crib and allowed to sit or stand. Only a few

days ago Dr. Cleveland, the superintendent of the Poughkeepsie Asylum, informed me that for over two years he had dispensed with cribs as he found that his patients were quieter without them. The same enlightened physician finds also that his most maniacal patients are rendered quiet by being allowed to labor in the open fields, and he does not hesitate to trust them with all kinds of farming implements, as does also Dr. Chapin, the superintendent of the admirable asylum at Willard in New York. And yet, notwithstanding these facts, the crib is used in many asylums in New York and other states. This cannot be altogether from ignorance, for in the New York City Asylum on Ward's Island, there are always several patients confined in cribs though the superintendent cannot but be aware of the animadversions to which his conduct in using these cages has subjected him. However, there is no ignorance so profound as that which comes from an obstinate and egotistical determination to stick to a certain line of conduct under all circumstances.

Indeed, there has been at least one attempted written defense of the crib, and this comes from an individual who however low his professional acquirements, seems to be accepted by the association of American Superintendents of Insane Asylums, as the exponent of their peculiar views and practices. And this is the superintendent of the North Carolina Insane Asylum at Raleigh. From the annual report of this humanitarian—for he advocates the use of the crib on the ground of humanity, and is hence, I suppose, entitled to the designation—it appears that in his asylum the proportion of cures to the whole population was less than 4.9 per cent., while the deaths ran up to 5.6 per cent. It would be a matter of some importance to know in how many of these, death was directly produced or accelerated

by the use of the barbarous contrivance for which no denunciation is too severe.

And now in conclusion, let me say one word in regard to the great importance that the medical profession should take in hand the whole subject of insane asylum reform. It may be alleged that there is no ground for agitation, and this is the cry of the superintendents; but within the last few months a legislative committee of Ohio has discovered that the greatest barbarities have been practiced at the Longview Asylum in that state. A committee of the Michigan Legislature has unearthed like horrors in the asylum at Kalamazoo. The State Board of Charities of New York on investigating the condition of the Onondaga County Asylum only a few days ago, found that the opinion is entertained and carried out practically that it is proper to inflict punishment on the insane by striking them with a strap, showering them, dashing water in their faces while they are held on the floor, depriving them of food for a time and confining them in dungeons. A committee of the same board, during the present month, report of the asylum for insane women on Blackwell's Island, New York City, that:

“This asylum continues to be a source of the greatest anxiety to us. We see that there is not proper provision for the patients, and we know that their surroundings must of necessity increase and prolong the disease under which they are suffering, and yet we are quite powerless to effect any permanent improvement. The Lodge and Retreat, where violent cases are confined, are buildings quite unfit for any human beings, and yet 200 insane women are shut up in them. The cells in which the patients sleep are in both of the institutions lighted only by transoms over the doors. At night, when the patients spend nearly twelve hours closely shut up in these cells, they must be pitch dark, and the air, which is not fresh even in the middle of the day, must be poisonous. In the Retreat many of the cells (measuring 7 feet 6

inches by 12 feet 9 inches by 12 feet) contain two beds ; and on one occasion lately when the nurse opened one of these cells in the morning she found one of the patients badly beaten about the head by her companion. The patients, as a rule, have nothing to do all day, and seldom go out except in the airing courts—bare spaces surrounded by high board fences. Such circumstances cannot tend to the calming of an excited brain, but must rather serve to increase the disease and fix it upon the patient for life. The beneficial influence of a change to pleasanter surroundings, and even partial employment, has been shown within a few weeks, when a number of patients from the Retreat were transferred to two new halls in the main building, and were supplied with work. Of the six physicians now in the asylum, only one had had any experience in the treatment of the insane before entering this institution. The younger men, of course, only enter the asylum for the purpose of gaining experience, and this they do at the expense of the patients. As a rule, they receive no salaries, and after serving a few months they usually resign, giving place to other inexperienced youths. During the past two years eighteen physicians have practised in the asylum. Among what might seem minor deficiencies in the institution, may be noted the want of a neat uniform for the nurses, whose present mode of dress is ill suited for the work they have to do."

Within quite a recent period four homicides have occurred in the New York City Lunatic Asylum on Ward's Island, an institution in which the Utica crib is habitually used, and in which there is a daily average of over twenty patients kept in mechanical restraint and twenty-five in seclusion.

In the Minnesota Asylum at St. Peter, a patient was recently killed by being forcibly fed with a spoon, by an attendant under circumstances of great cruelty.

In the Bloomingdale Asylum in New York, a lady while being fed by a nurse had the soft parts of the roof of the mouth torn away by the spoon being rammed violently down her throat. Such instances as these show

that the method of feeding, when patients from the existence of delusions or other cause will not voluntarily eat, is not only in itself highly improper, but that the operation is performed without the aid or even presence of a physician.

That other recent examples of bad management might be adduced will be readily believed by those who hear me; that many occur which are not brought to the knowledge of the external world can scarcely be doubted when we reflect upon the facts that those we do know of, would not have been revealed but for the circumstance that death or serious injury resulted, and that the close organization of lunatic asylums prevents the discovery of many outrages which under a more open system of management would have been impossible.

It is not to be expected that a change such as that contemplated can be at once effected. The profession has long been accustomed to regard insanity as a condition which only a few could treat successfully, and will have to unlearn that idea by having facts put before it in a lucid and convincing way. Those, too, who are working for reform must expect the fate of all reformers, and that is, the utmost extremity of rigorous treatment to which their adversaries dare subject them. They cannot now be fined or imprisoned or burned at the stake for their doctrines, but they can be misrepresented and slandered and threatened with various social and professional punishments for which those who have the courage of their opinions do not care, but which will be sufficient to frighten the timid and the insincere. These latter will sign petitions to Legislatures asking for insane asylum investigation, and at the first sign of active hostilities will hasten to withdraw their names, assigning misunderstanding or that they did not read what they sign-

ed. Others on being called upon to state their reasons for asking for investigation, will take alarm and protest that they have always believed the system of insane asylum management in existence, the very best the State could ever have. Well, the world of to-day is not a suitable place of residence for these mild-mannered gentlemen. It is a world of discussion, of strife and of warfare, and one which—not yet, we think, having reached perfection—is capable of being bettered. The man who consults his own safety by running away when the bullets begin to fly, may live to fight another day, but such fighting as his, is more likely to do harm to his so-called friends than to his reputed enemies. These are the men who, when the battle is won (and so sure as you and I are in this hall together we will win this battle), are loudest in their denunciations of the vanquished and warmest in their commendation of the victors.

Gentlemen of the Connecticut State Medical Society, I thank you for the courtesy and kindness with which you have listened to my imperfect remarks. It is an honor to address a body of physicians like this. It would be a ten fold honor if anything I have said should tend to the acceptance by you of ideas to which I have given much attention, and which I am induced to hope would, if carried out, improve the condition of a most unfortunate class of our fellow creatures.

Within the last few days the opinion of an eminent English alienist, Dr. Bucknill, has been quoted in favor of the pathological work done at the Utica Asylum by a German physician, especially appointed for the purpose. Let me conclude what I have to say by another quotation from this gentleman—one whose kindly feeling for America, and especially New England, is apparent throughout his little work, "Notes on Asylums for the Insane in America," and

who, therefore, cannot for a moment be suspected of any but the most worthy motives. Dr. Bucknill says, in ending his remarks in opposition to the whole system of mechanical restraint, as practiced in most of our asylums:

“Far be it from me to dogmatise my psychiatric colleagues in the United States; but I may be permitted earnestly to entreat them to take a wide and general view of their position in their own social surroundings and in the wide world of science. My fervent hope for them is that by doing so they will consent to cast behind them a narrow prejudice, and thus be able to reinstate themselves in the front ranks of practical philanthropy and in the confidence of their compatriots. They are men animated, as I most willingly testify, by the highest motives of humanity, but ignorant and mistaken in their application of means to the furtherance of that great end to which we all press forward, namely, to the care and cure of the insane with the least amount of suffering. That they will learn this without much delay, I very confidently predict; that they will sink five fathoms deep their bonds of hemp and iron, and bring ‘medicine to a mind diseased’ only in the shape of medical and mental influence; that they will jealously guard the enjoyment of all innocent freedom for their patients and all possible publicity in the management of their institutions. I feel as sure as that they and their countrymen are destined in the ages to be our great rivals in the race of social and scientific progress in this and in all other matters. In a few years they will look back upon their utterances in defence of mechanical restraint with the same wonderment with which they may now regard all that has been said in defence of domestic slavery, but with no wounding recollections of war and conflict, and then they will forgive me or my memory for that I have written the above words, which may perchance have hastened this happy change.”

POSTSCRIPT.

The President of the Connecticut Medical Society having extended an invitation to the New York Neurological Society to send a delegate to the meeting at Hartford, I was appointed to represent the latter association.

The question of insane asylum construction had been discussed before the Legislature of the State and it was contemplated that I should read a paper on the subject already considered in published monographs by Drs. Baker, Shew, and Cleaveland.

On the 28th of May I attended a meeting of the society, and was by formal vote of the society received as a delegate from the Neurological Society and requested to present a paper on the "construction, organization, and equipment of hospitals for the insane," the following day, and a place in the order of exercises was appointed for the purpose.

On the 29th, I was again presented as a delegate from the Neurological Society, and again formally received as such by the Connecticut Society. I made a few remarks expressive of my sense of the honor done me. Shortly afterwards I read the accompanying paper.

It was received with marked attention and applause. At its conclusion a special vote of thanks was passed and a copy of the paper was requested for publication in the transactions of the society. Both votes were unanimous. I requested the secretary to allow me to retain the MS, stating that I would send him a printed proof within a week, and that it would in no event be published elsewhere till it had been printed by the society. He requested that the delay might not be greater. I sent him the copy within the time stated.

Shortly afterwards I heard from friends that the "asylum ring," (for there is such a body in Connecticut as well as in New York) was determined that the paper should not be

published in the transactions of the society, and in due course of time I received a letter from the secretary stating that the publication committee had decided not to admit the address into the volume of transactions, but putting this determination on the ground that the society had never yet printed the papers of non-members, and that to do so now would be to set aside a long established precedent.

The publication or the non-publication of the address in the transactions is not a matter of the slightest consequence to me or the public, for I shall take care that it is circulated extensively enough in and out of Connecticut. How far the publication committee composed (as I am informed by distinguished physicians of Connecticut) of members entirely in the interest of the "asylum ring" can disregard the common principles of courtesy and the positive wish of the society is a matter for the society to determine. That such action will not redound to the advantage of the narrow minded individuals who prompted it, or to the success of the unenlightened and inhuman policy of the asylum power I am quite sure. The truth is not to be crushed by any such process. A good cause is always helped by insufficient persecution. To be effectual, the repressive measures must be systematic, thorough, powerful, crushing, unscrupulous and heartless. The latter two qualities are sufficiently well marked in all the acts of the "asylum ring" in all parts of the country. But the weak brains or semi-paralysed arms of the organization can make nothing systematic, thorough, powerful or crushing except the blows which their misdirected efforts bring down on their own heads.

In this connection the following letters from the then President of the Connecticut Medical Society and from several prominent members will I trust not be out of place. They are sufficiently explicit, and do not require amplification at my hands.

27 BROAD ST., NORWICH, CONN.

September 6th, 1879.

WM. A. HAMMOND, M.D.,

MY DEAR SIR :

The publication committee of the Connecticut Medical Society having refused publication to the paper read by you at the last convention, I would be glad to see the paper published in pamphlet form for general distribution. I myself have always felt very keenly the disgrace to the profession of the present methods of Hospital (Insane) management ; and, believing that intelligent discussion of the subject will be of the greatest benefit to the unfortunate, desire that your able paper shall have wide circulation not only among the profession, but the educated laity besides.

I am, very truly yours,

CHAS. M. CARLETON,

Late Pres. Conn. Med. Soc.

W. A. HAMMOND, M.D.,

DEAR SIR :

Believing that intelligent discussion of the management of the insane will be of great service to that unfortunate class of society, and will lead to better directed efforts on the part of the community at large, we respectfully ask that your paper, read at the last convention of the Connecticut Medical Society, be published in such form as shall ensure its wide circulation.

D. D. CLEVELAND,
RUFUS BAKER,
S. W. TURNER,
P. A. JEWETT,
GEO. W. BURKE,
M. C. WHITE,
T. B. JEWETT,
C. A. LINDSLEY.

PROVISIONAL REPORT OF THE COMMITTEE
OF THE NEW YORK NEUROLOGICAL SO-
CIETY, RELATIVE TO THE SUBJECT OF
INSANE ASYLUM ABUSES.

PRESENTED TO AND ACCEPTED BY THE SOCIETY AT THE
MONTHLY MEETING, HELD JUNE 2D, AT THE
COLLEGE OF PHYSICIANS AND SURGEONS,
4TH AVENUE AND 23D STREET.

THE undersigned, constituting the Committee on Insane Asylum Abuses, of the NEW YORK NEUROLOGICAL SOCIETY, respectfully report, that the petition prepared by them, and which contained the 'complaints deemed most important, was signed by many prominent physicians, lawyers and other citizens, and presented to the State Senate on the 20th of March last.

It was referred by that body to two members, Mr. Goebel, of this city, and Mr. Goodwin, of Utica, constituting the Committee on Public Health. That Committee has now made a report so unfair, one-sided, and so grossly misrepresenting the real facts of the case, that we feel called upon to solemnly protest against its being received by the profession and public as even remotely embodying the results of a *bona fide* examination. There was not even the pretence of a fair examination, documentary evidence was excluded, the bias of the Committee was evident from the first, and they were surrounded by superintendents who had been examined the day previous, without any member of your Committee being notified thereof.

One member of your Committee who was examined at Albany, was forced, in self-protection, to protest against the passing from superintendents to the Senator examining of slips of paper containing questions desired by the former to be propounded to the witness, and superintendents were repeatedly seen to prompt that Senator. It may suffice, in possible explanation of the bias of the Senate Committee, to refer to the fact that the Senator conducting the examination is a resident of Utica, and strongly affiliated with the authorities of the asylum there located. It will be noticed that the Senate Committee is extremely careful in summing up its so-called conclusions to speak of State institutions exclusively (meaning asylums supported and controlled by the State alone), although the petition distinctly referred to all lunatic asylums within the State limits.

As further characterizing the animus of the Senate Committee, we may refer to the fact that their piece of special pleading, miscalled a report, has been extensively circulated among superintendents and their friends, although no member of your Committee has received a copy, and we have no other knowledge of this report than that furnished by the daily papers.

It is also worthy of note that the Senate Committee, although informed that much valuable evidence could be obtained in New York, where most of the petitioners resided,—evidence which could not be obtained at Albany,—avoided receiving this testimony, by refusing to meet anywhere but in Albany.

Your Committee has been charged by the partisans of the asylum interest with having appended names to the petition without authority and misrepresenting its purport to signers. These charges are false in every particular; every name appended to the petition is authentic, and no one

signed it without having had full opportunity to read it and become acquainted with its intent and purposes. It is true that a few of the signers became alarmed when they received a *quasi* threatening summons from the Senate Committee, and wrote that they withdrew their names, and that still a few others withdrew theirs at the personal solicitation of the superintendents, but the greater number of signers, including many prominent physicians, continue to affirm the pertinency of all the inquiries and the necessity of a full investigation.

Your Committee proposes within a reasonable period to present a detailed report, exhibiting the actual character of the testimony presented, as well as other evidence which was excluded, in support of the allegations set forth in the petition. Your Committee is conscious of the fact that it requires no better vindication of its position.

<i>The Committee.</i>	{	T. A. McBRIDE, M. D.,
		E. C. HARWOOD, M. D.,
		E. C. SEGUIN, M. D.,
		WM. A. HAMMOND, M. D.,
		E. C. SPITZKA, M. D.,
		J. G. KIERNAN, M. D.,
		LONDON C. GRAY, M. D.,
		W. G. MORTON, M. D.

THE EFFECTS OF ALCOHOL UPON THE NERVOUS SYSTEM.*

A great deal has been recently written in regard to the beneficial and injurious influence which alcohol exerts upon the human system in health and disease—but strange to say, the effect produced upon the nervous structures of the body appears to have in a great measure escaped attention. And indeed much that has been said in the lay journals on the subject has consisted of generalizations and assertions made either from insufficient data or from no data at all.

Some three or four years ago I undertook a series of experiments for the purpose of arriving at conclusions as nearly exact as possible relative to the direct effect of alcohol upon the nervous system. Lately, these experiments have been carefully repeated and extended, and they are now submitted with some confidence as to their correctness and the value of the conclusions deducible from them.

The influence of alcohol as well as of every other toxic substance should be studied from two distinct points of view.

1. The effects produced upon the body by a single dose.

* The basis of this essay was published several years ago, but it is now revised, extended, and the views then expressed somewhat modified to accord with the more enlarged experience of the author.

2. The effects following its continued administration in quantities small or great.

Under the first of these heads, I have performed the following experiments:

Experiment.—I caused a dog to take into its stomach three ounces of strong alcohol, diluted with a corresponding quantity of water. Immediately on receiving it, the animal retired to a corner of the room and lay down. At the end of five minutes I endeavored to make it walk about the apartment, but it did so with evident reluctance, though up to this time the gait was not staggering. I should have stated that I detected alcohol in the expired air in forty-eight seconds after administering the liquid.

After eight minutes the dog walked with some difficulty, and on carefully examining the gait I found that the posterior extremities were beginning to be paralyzed. This paralysis gradually increased, the attitude became more and more staggering, and at the end of fourteen minutes the animal could no longer stand. The paralysis had now reached the anterior extremities.

Sensibility was still present, though evidently lessened in acuteness; loud noises were perceived, and the eyes were involuntarily closed when the motion of striking was made before them. The respiration was hurried, and the action of the heart was greatly accelerated.

The pupils were at first contracted, but became dilated in about fifteen minutes, and remained in that condition throughout the experiment.

In thirty minutes the animal was in a state of profound coma. Sensibility, even of the cornea, was abolished; the limbs were in a state of complete resolution; the respiration was hurried; the heart beat rapidly but feebly; the urine and fæces passed involuntarily, and the temperature, as in-

indicated by a thermometer placed in the rectum, had fallen from 101° F., which it was before the ingestion of the alcohol, to 98.5° .

The animal remained in a comatose condition, and died one hour and twenty-two minutes after the ingestion of the alcohol.

In this experiment the alcohol was administered in such a large dose that the period of excitation, which generally follows in a few minutes, was masked or altogether prevented. In the following experiment, the quantity was smaller, and the sequence of phenomena was more regular.

Experiment.—I introduced into the stomach of a large dog one ounce of alcohol, diluted as before.

Nothing occurred worthy of notice during the first five minutes. Then the action of the heart was accelerated, as was also the respiration, and the pupils became contracted. Sensibility and the power of motion were unaffected.

In twelve minutes, the gait of the animal became uncertain, the limbs were lifted higher than was natural, and the body swayed from side to side, and occasionally strong efforts had to be made to maintain the erect position. The pupils were still contracted, and sensibility appeared to be intact.

This condition lasted twenty-two minutes, and then the pupils began to dilate. The posterior extremities were so far weakened as to render locomotion impossible, and the sensibility of the posterior parts of the body was materially impaired; the respiration was very irregular, sometimes being quite rapid, then ceasing for several seconds, and then becoming slow. The pulse was still rapid, but weaker than at first. In a little less than an hour the animal was in a state of light coma, which lasted about twenty minutes. Recovery took place gradually, the phenomena of intoxica-

tion disappearing in an inverse order to their supervention.

At the beginning, before the ingestion of the alcohol, the temperature as determined by a thermometer, the bulb of which was inserted into the rectum, was 100.5° . After ten minutes it was 103° ; twenty minutes, 103.5 ; forty minutes, 105° ; fifty minutes, 102° ; one hour, 99° , the lowest point reached.

Observations of the symptoms which ensue when alcohol in sufficient quantity is given to animals shows that the condition of intoxication may, as Marvaud * proposes, be divided into three periods or stages.

1. *Period of Excitation*.—Uncertainty in the movements, acceleration of pulse and of respiration, contraction of the pupils.

2. *Period of Perversion*.—Muscular paralysis, beginning in the posterior extremities, irregularity of pulse and of respiration, dilatation of the pupils.

3. *Period of Collapse*.—Complete paralysis of motion, anæsthesia, feebleness of the pulse and of respiration, stoppage of respiration and of the heart's action, death.

Now I was desirous of knowing how much of this condition was due to the presence of alcohol in the brain, and how much to disturbance in the quantity of blood normally present in this organ. In other words, I wished to ascertain whether alcohol increased or diminished the amount of blood circulating within the cranium. For this purpose I performed the following experiment:

I trephined a dog, and secured a cephalohæmometer into the opening made by the trephine in the skull. I then administered an ounce of alcohol, diluted as in the previous experiment. In fifty seconds I detected alcohol in the expired air; in four and a-half minutes the respiration was ac-

* L'Alcool : son action physiologique, etc. Paris, 1872, p. 28.

celerated, the action of the heart became more rapid and strong, and the pupils were beginning to contract. Still there was no increase in the intracranial pressure, and I therefore knew that up to this time the amount of blood in the brain had not been increased. In six minutes and a-half the dog's gait was staggering, and though its movements were uncertain there was no paralysis. The intracranial pressure was still unaltered.

The fluid remained stationary in the tube of the instrument till seventeen minutes had elapsed. Then it began to rise slowly, and with this increase in the intracranial pressure, paralysis of the posterior extremities supervened. As the amount of blood contained in the cranium became greater, the paralysis extended, the pupils dilated, and coma ensued. The return to sensibility and the power of motion was attended with a diminution of the intracranial pressure, and was probably directly dependent thereon.

I repeated this very instructive experiment twice with similar results.

The deductions to be made from them are, that the first symptoms which result from the ingestion of alcohol are due to the presence of this substance in the brain, while the later phenomena are, in part at least, the results of cerebral congestion.

In man a like sequence is observed. A single glass of wine induces an exhilaration and activity of mind before there is any evidence of an increase in the amount of blood circulating in the cerebral blood-vessels. In several subjects particularly sensitive to the action of alcohol, I have ob-

NOTE.—In these and other experiments detailed in this memoir, the presence of alcohol in the expired air was determined by causing the breath to pass through a solution of bichromate of potash in sulphuric acid, a test suggested by Masing* and not by Lallemand, Perrin, and Duroy, as generally supposed.

* *De mutationibus spiritus vini in corpus ingesti.* 1854.

served that the flushing of the face and increased vascularity of the intraocular vessels, as shown by the ophthalmoscope, were second in order of occurrence to others indicating mental excitement.

But, as is well known, the immediate effects of a large quantity of alcohol, when taken into the human stomach, are not limited to mental excitement and flushing of the face. It does not come within the scope of this memoir to consider all of them; but so far as the nervous system is concerned they properly come under notice.

Lévy* divides the phenomena of alcoholic intoxication, as they relate to the nervous system, into three stages: excitement, perturbation, and destruction of the functions of the brain and spinal cord. The stage of excitement is characterized by a sensation of heat in the skin of the whole body and by redness of the face. The eyes appear to be larger and more brilliant, the ideas flow more readily, the tendency to talk is generally increased, but the articulation is usually not so distinct and exact as is natural. The disposition becomes more generous, and perhaps more reckless as to consequences, although the bounds of propriety of conduct and truth of expression are not exceeded.

Occasionally a different set of symptoms results. The individual, from being naturally talkative, becomes taciturn and stolid, and a generous disposition is changed to one of which churlishness and selfishness are the chief features.

If the quantity of alcohol taken has been small, or if the individual now ceases to drink it, the subsequent stages do not supervene, and the equilibrium is soon restored without the occurrence of any abnormal condition. But if the amount ingested has been large, or if the potations are continued, the second stage, that of perturbation, ensues.

* *Traité d'Hygiène*, t. ii. Paris, 1862, p. 63.

There are now vertigo, disturbances of sight, such as result from paralysis of one or more of the ocular muscles, and giving rise to double vision, contraction of the pupils, noises in the ears, and increased redness of the face. The sense of taste becomes weakened, the voice loses its natural inflections and becomes rough and monotonous, and the articulation is indistinct from partial paralysis and defective coördination of the muscles of speech.

The gait, from like causes, becomes weak and uncertain, and hence, if the individual attempts to walk, he staggers. The movements of the upper extremities are irregular, and often exhibit marked tremor like that which constitutes so prominent a feature of paralysis agitans, or some of the forms of sclerosis affecting the brain and spinal cord.

Still greater alterations from the normal standard are shown in the mind than in other manifestations of nervous action. The most striking change occurs with the emotions, which generally assume an undue prominence and dominate over other of the mental faculties. And it not infrequently happens that the feeling which is most conspicuous is the very opposite of that which is natural to the individual. Thus the brave man becomes cowardly, the timid courageous, the peaceable quarrelsome, the modest shameless, etc. Usually, however, the emotions, which the subject in his normal condition is able to control and to keep in proper subordination to the intellect and will, become exaggerated, and are no longer held in subjection. It therefore happens that when this stage of alcoholic intoxication is reached, the individual, who while in his natural state is high-toned and spirited, is ready to take offence and engage in quarrels upon the slightest provocation, and often when no cause for his emotion and conduct exists. It is in this stage that outrages against the law are most apt to occur.

The more purely intellectual part of the mind does not escape. The judgment is weakened, the memory impaired, the imagination exalted or perverted, and delusions, often having their origin in disordered sensations, and often arising in the mind without any accompanying illusion or hallucination, may assume the government of the thoughts and actions. The ability to grasp the details of a subject, and to comprehend them, is greatly impaired, or even altogether destroyed, and hence study or continuous and systematic thought is no longer possible.

In the third stage the full action of the alcohol is attained. The mental, sensorial, and motor functions are more or less completely abolished, and death, generally the direct result of suspension of the respiratory movements, may ensue. When this degree of alcoholic intoxication is at its height, the individual is dead to all external impressions. Boiling water may be poured on his body, but he does not feel it; speech is impossible: the sphincters are relaxed, allowing the contents of the bowels and bladder to escape; the pupils are largely dilated; the breathing is slow, heavy, and often stertorous; the face is swollen and purple from the circulation of non-oxygenized blood through the vessels; and the power of thought is extinct. With the exception of that part of the cerebro-spinal axis which presides over the functions of respiration and circulation, the individual is to all appearance dead. It not infrequently happens that this region is so fully affected that life is abolished.

Such are the immediate effects of large quantities of alcohol when ingested into the human stomach. No one can fail to observe that most of the remarkable phenomena which follow on the administration of this liquid are connected directly or indirectly with the nervous system. Indeed, experiments performed upon animals, with reference

to this point, as well as careful observation of the effects of alcohol on the human organism, show that this substance has a signal affinity for the nervous tissue, and that it is even capable of acting powerfully on the brain, the spinal cord, and the sympathetic system, without the intermediation of the blood. Instances are on record, and I have myself witnessed one such, in which a large quantity of alcoholic liquor taken into the stomach has produced death in a few minutes; and Orfila * cites a case in which a man died immediately from the effects of an excessive dose of brandy. I have several times killed rabbits in less than a minute by introducing an ounce of pure alcohol into the stomach. In such cases the action is not exerted through the medium of the blood, but directly on the sympathetic system by the terminal nerve-branches in the stomach. Indeed, if, as I have frequently done, a like amount of alcohol be injected into the blood directly, death does not ensue with as great a degree of rapidity.

Marcet * says :

“ By experimenting on frogs I have shown, in a paper read to the British Association, in 1859, that a sudden temporary suspension of sensibility or shock is occasionally brought on when the hind legs of these animals are suddenly immersed in strong alcohol ; and I have obtained positive proof that this phenomenon is due to an influence exerted exclusively on the extremities of the nerves supplying those limbs, by observing this same effect to take place after the circulation of the parts in contact with alcohol had been entirely arrested. When, on the contrary, the nerves of the limb immersed in alcohol were severed from their centre, the circulation being left undisturbed, a shock never happened. In the experiments in question it was obvious that the sudden occurrence of insensibility or anæsthesia was due to an action of the alcoholic fluid on the extremities of the cerebro-spinal nerves, which action

* Toxicologie, t. ii, p. 528.

* Chronic Alcoholic Intoxication. New York, 1868, p. 10.

had been transmitted by these nerves to the brain ; the phenomena of reflex action continued, for the respiration appeared unimpaired, and after the lapse of some minutes the shock passed off with a return of sensibility, although the frog's hind legs had not been removed from the alcohol."

I have repeated Marcet's experiments, with every possible precaution to guard against fallacy, and am satisfied that his conclusions are correct. In one experiment I divided all the tissues of both posterior limbs of a large frog, except the sciatic nerves. I then placed small slips of thin glass under these nerves, and moistened them with a few drops of pure olive oil, so as to prevent the alcohol acting by imbibition. I then plunged both limbs up to the thighs in absolute alcohol. Shock ensued in eleven seconds, and lasted about five minutes. During its continuance the animal was insensible and anæsthetic.

In another instance I performed the converse experiment of exsecting the sciatic nerves, leaving the other tissues of the extremities intact. I then, as before, inserted both legs into absolute alcohol. No shock ensued, and the animal was not apparently affected by the alcohol till twenty-two minutes had elapsed.

Absorption of alcohol from the stomach is sometimes greatly delayed, and yet many of the effects of the substance are observed. Most of us have seen an intoxicated man relieved immediately by the full action of an emetic. Of course the emetic in such a case can only remove the non-absorbed alcohol still remaining in the stomach, and yet the symptoms of inebriation disappear on its ejection. It can only have acted through the nervous system, without the intermediation of the blood.

Observations and experiments such as these are very striking and important. They tend to show that the action

of alcohol is exerted upon the nervous system in a twofold manner, and they are evidence of the remarkable affinity which the substance in question has for the nerve-tissue.

Post-mortem examinations of persons who have died directly from the effects of alcohol, or who were during life habitual drunkards, also show how powerfully the nerve-centres are influenced by this agent. In extreme cases it has not infrequently happened that the brain, on being exposed, has evolved a strong odor of alcohol. It is true that the experiments of Dr. Hutson Ford* appear to show that alcohol is a normal constituent of the blood; but it is very certain that the quantity is altogether too small to give the characteristic odor of this substance, although the reaction with chromic acid, and the distillate being capable of ignition and burning like alcohol, are affirmative evidences of great significance. He did not, however, examine the brain for alcohol, and my own experiments on this point, with the brains of dogs and oxen, and of men not addicted to the use of alcoholic liquors, have given negative results. Aware, however, of the great affinity which the cerebral and other nerve tissues have for alcohol, it seems to me that if this substance is normally present in the blood it ought to be found as well in the brain as in the lungs and liver, unless, as may have been the case, the alcohol discovered by Dr. Ford in these organs and in the blood was a *post-mortem* production.

Dr. John C. Peters† of New York, was among the first to make careful and systematic observations of the *post-mortem* appearance of individuals who had died from the excessive use of ardent spirits. As regards the brain, he found that

* Normal Presence of Alcohol in the Blood, Journal of the Elliot Society of Natural History, vol. i. Charleston, 1859.

† On the Pathological Effects of Alcohol, New York Journal of Medicine, vol. iii. 1844, p. 335.

"invariably there was present more or less congestion of the scalp and of the membranes of the brain, with considerable serous effusion under the arachnoid, while the substance of the brain was unusually white and firm, as if it had lain in alcohol for an hour or two, and the ventricles were quite empty. In not more than eight or ten instances did we find more red spots upon the cut surface of the brain than usual. The peculiar firmness of the brain was noticed several times, even when decomposition of the rest of the body had made considerable advance."

Such changes as are described cannot result entirely from congestion, but must be ascribed, in great part, to the direct action by contact of alcohol on the brain substance. We have seen how strong is the affinity of alcohol for this tissue. As Carpenter * remarks, alcohol passes into the brain and changes both its chemical and physical properties. It would be strange indeed, therefore, if with alteration of structure there were not also aberrations of function.

There are two affections, the manifestations of which, as regards the nervous system, are so well marked, and which are so immediately and necessarily the result of the excessive use of alcohol, that I feel compelled to recall some of their chief points; these are delirium tremens and chronic alcoholic intoxication. The first named may be properly considered as an acute form of alcoholic poisoning; the last as a more chronic condition.

Now I am disposed to think that two very distinct disorders are classed under the common designation delirium tremens. One of them is a veritable acute cerebral disease, produced by blood-poisoning. It occurs at the height of an alcoholic debauch, and is more properly acute alcoholism

* On the Use and Abuse of Alcoholic Liquors in Health and Disease. London, 1870.

than anything else. The other results when the system, habituated to large doses of alcohol, is suddenly deprived of the accustomed stimulus. Both are characterized by delirium, sleeplessness, trembling, hallucinations, illusions, and extreme debility, but in the septicæmic form there are often convulsions, such as occur in other cases of blood-poisoning, and a general depraved condition of the system, symptoms which are not met with in the other variety. Besides, when we come to treat such cases we find that in the septicæmic variety such means as are calculated to sustain the strength and to act upon the excretory organs of the body are those which are most effectual. Hence quinine, beef-tea, and a full, nutritious diet as tonics, and digitalis as an eliminant of the poison through the kidneys, are the most effectual remedies we can bring to bear on the disease. Every dose of brandy or whiskey, or other alcoholic liquor, adds fuel to the flame, and even opium, by restraining the excretions, is injurious. I have had patients, before I recognized the difference between the two forms, take solid opium by the drachm, and laudanum by the wineglassful, with an aggravation of their symptoms for which I could not then account. And I have seen similar cases restored to health, as if by magic, under the action of restoratives, and digitalis in large doses. Doubtless the tonic action of this remedy on the heart adds to its value; but its effect on the kidneys is, I am persuaded, its chief claim to our esteem. In many of such cases I have derived prompt and most beneficial effects from the administration of the bromides of either potassium, sodium, ammonium or calcium in doses of from forty to sixty grains, repeated every three or four hours till sleep be procured, or it is evident that no such result will ensue. Generally three or four such doses will accomplish the object, and this is, I think, more readily obtained if three

or four grains of the bromide of zinc be given in conjunction with the other bromide.

In the more purely adynamic form there is no doubt that our main reliance consists in the administration of such remedies as will again stimulate the system, and especially the brain and other parts of the nervous apparatus. Hence it is that alcoholic liquors and opium are so generally effectual in combating the symptoms. They are the best means we have, and the persistent refusal to use them is not only unscientific, inhuman, and narrow-minded, but is often followed by the speedy death of the patient.

I think I will have rendered some service if I succeed in directing careful observation to the subject of the essential differences in the two forms of acute alcoholic poisoning to which I have alluded. The fact that delirium tremens may occur as a consequence of cessation from drinking is denied by Aitken* in very positive terms; but to my mind any one who has seen the disease in soldiers, sailors, or prisoners will be slow to confirm his statements. I have frequently seen delirium tremens occur in soldiers whose debauches have been suddenly interrupted by confinement in the guard-house, and I am quite sure that most army and navy and prison medical officers have had similar experience. Watson,† on the other hand, assigns no other cause than that the "habitual stimulus has been diminished or abandoned;" but he subsequently, without seeming to notice the bearing of the case, refers to an instance in which the patient was constantly under the influence of alcoholic liquor. Dr. Flint,‡ however, distinctly recognizes this dual

* The Science and Practice of Medicine, third American edition, vol. ii, p. 847. Philadelphia, 1872.

† Lectures on the Principles and Practice of Physic, American edition. Philadelphia, 1872, vol. i, p. 347.

‡ A Treatise on the Principles and Practice of Medicine, third edition, Philadelphia, 1868, p. 735.

causation, but the fact does not appear to influence his views of pathology or treatment.

The condition known as chronic alcoholism, or chronic alcoholic intoxication, was not clearly recognized as a separate pathological entity till Dr. Magnus Huss, of Stockholm, published his observations in 1849. His book, being printed in the Swedish language, is, to a great extent, unread outside of Scandinavia. Two very excellent articles, embracing a full synopsis of his treatise, were published in the British and Foreign Medico-Chirurgical Review in 1851 and 1852. My description of the disorder is taken in great part from them. There is probably not a physician of even moderate experience who will not from his own experience recognize the accuracy of all the details.

In one group of cases resulting from the long use of intoxicating liquors the principal manifestations of the disease relate to the muscular system. Tremor and unsteadiness, especially of the upper extremities, are among the first symptoms. Subsequently the lower limbs are affected, and then the muscles of the trunk. Quite recently a case of the disorder has come under my observation, in which the tremor was manifested in the eyes, a species of nystagmus being the result. The tongue very generally exhibits the feature in question, it being impossible for the patient to hold it steady when he protrudes it, and the speech being markedly affected. These phenomena are most evident in the morning, before the patient has had his accustomed dram.

In other cases the tremor is not a very prominent feature, though, as far as my experience goes—and it is by no means inconsiderable—no patient with the disorder in question is free from a tremulous agitation of the muscles when he attempts to make a voluntary movement. But it may not be

well marked, and instead of it the individual observes that he cannot hold things as well as he once did. Objects which he takes hold of fall from his hands without his being able to retain them. If he does exert himself to avoid this inconvenience, the hands are seized with an involuntary trembling, which he calls "nervousness," and which he endeavors to cure by fresh potations. From this feebleness or paresis the distance to paralysis is not great.

I had, not long ago, a case under my charge in which the patient, a gentleman of admitted eminence in his profession, clearly suffering from chronic alcoholism, could hold nothing in his hands unless he kept his eyes fixed upon them. The moment he ceased to look, the object fell to the ground. Upon one occasion he let his baby fall to the floor when it was placed in his arms by the nurse, through his attention and eyesight being directed from it by some passing event. In my Treatise on Diseases of the Nervous System I have referred to several instances of this curious condition which were due to other causes.

The lower extremities eventually become affected, and the patient may entirely lose the power of locomotion. The nerves of sensation also became involved, and there are various abnormal feelings, constituting one or more of the forms of anæsthesia. Vertigo and dimness of vision may also be present.

This type of the disease Dr. Huss calls the paralytic.

In the next form, or the anæsthetic, the phenomena are more directly connected with perverted or lost sensibility from the outset. The extremities first become affected, and subsequently the central parts of the body. At first the patient experiences a difficulty in determining from the feel the nature of the object he has laid hold of, or against which his foot may have struck. But in a more advanced

stage he loses all sense of pain, and pins may be thrust into his skin, or a coal of fire dropped upon it without his experiencing any discomfort. With the anæsthesia there is always loss of motor power.

The æsthesiometer, the application of which instrument to practical medicine is of more recent date than Dr. Huss's observations, enables us to detect incipient loss of sensibility at a very early stage of the affection.

In several of the cases which have come under my notice the symptoms have been regarded as indicating the existence of locomotor ataxia, and indeed it must be confessed that there is a considerable resemblance between the two affections. The clinical history, the absence of the electric-like pains, and the fact that the indications point rather to a cerebral than a spinal disease, will in general suffice to distinguish this form of chronic alcoholism from posterior spinal sclerosis. It must be borne in mind, however, that the excessive use of alcohol is one of the chief factors in the production of locomotor ataxia, and hence that the two affections may coëxist.

Symptoms connected with this category of cases which I have noticed, but which are not alluded to by Dr. Huss, are that the senses of sight, hearing, smell and taste are also often involved.

Another singular phenomenon which I have observed in these cases, which is referred to by Magnan,* and also quite recently by Virenque,† is that the loss of sensation involves only one lateral half of the body. This hemi-anæsthesia is met with in several other morbid conditions. The other special senses are generally implicated. Thus the patient

* De l'Alcoolisme, des diverses formes du délire alcoolique et de leur traitement. Paris, 1874.

† De la perte de la sensibilité générale et spéciale d'un côté du corps, etc. Paris, 1874.

loses the sight of one eye; cannot hear with one ear; can taste the most strongly sapid substances with only one half of the tongue, and perceive the most penetrating odors with only one nostril. In one case cited by Magnan, the patient, who had long been addicted to the excessive use of alcoholic liquors, and subsequently to the use of absinthe, had hallucinations and delusions in addition to the hemi-anæsthesia, and what is unusual, complete loss of sensation in the cornea of one eye, although tears were excited in both eyes when the affected one was touched by the finger.

In the third form of chronic alcoholism, convulsions constitute a prominent feature, though they are not generally among the first symptoms. I have, however, witnessed several cases in which epileptiform seizures were the immediate and direct consequence of the excessive use of alcoholic liquors, and in which there had been no well-marked premonitory symptoms. But in the great majority of instances there are derangements of motility and of sensibility, such as have just been described, and then the gradual supervention of convulsive jerkings of the muscles, similar to those which occur in chorea, combined with painful tonic contractions or cramps. After a time the spasms are accompanied with loss of consciousness, and hence are more truly epileptic in character. Dr. Huss noticed that as the condition of chronic alcoholism became more profound there was a tendency towards the disappearance of the convulsions, and that at last they ceased entirely, and my own experience is to the same effect. They therefore indicate a rather early stage of the disorder, although usually regarded as of serious import. I can call to mind one case in which a single dram of half a gill of whiskey was sufficient to produce a series of half a dozen fits in quick succession.

In the next and last variety of the affection there is a

general hyperæsthetic condition of the skin and other special organs of the senses. The least touch causes intense pain; bright lights are unendurable, and even the diffused light in a moderately illuminated room is painful. Very gentle noises cause great discomfort, and loud sounds are agonizing. Even the smell and taste are exaggerated, and occasionally perverted to the extent of illusions.

In whatever form chronic alcoholic intoxication may manifest itself, there are occasionally notable symptoms present which do not constitute ordinary features of the disease. Thus there may be double vision, from paralysis of one of the ocular muscles, usually the internal rectus, in which case there is ptosis also; or the muscles concerned in articulation are involved, and speech becomes imperfect or impossible; or those by which swallowing is effected are paralyzed, or there is violent palpitation of the heart, or intense neuralgic pain in one or more parts of the body. To touch on all these complications would require more time than I have at my disposal. But the mental symptoms which form more or less prominent characteristics of all cases of chronic alcoholism require more extended notice. The perceptions, the emotions, the intellect or the will are all implicated to a greater or less extent. Attention has already been called to the aberrations of the perceptions constituting illusions and hallucinations. The emotions assume an undue prominence, especially those of a sorrowful character, and thus the individual becomes maudlin, a condition which I should describe as consisting in a disposition to lament and shed tears over imaginary or greatly exaggerated griefs. It is rarely the case in my experience that the subject of chronic alcoholism is changed from a peaceable to a quarrelsome person, or from a timid to a brave one. The alteration is almost always in the other direction.

At the same time it is not to be denied that individuals whose passions are vicious and not held in complete subjection, are rendered still more vicious and uncontrollable by chronic alcoholism. Perhaps the most characteristic feature as regards the emotions which persons suffering from the disease in question exhibit is irritability of temper. This is shown in the fact that slight circumstances, which in a state of health would cause no annoyance, now give rise to great vexation. At the same time, though there is not, as I have said, much tendency to quarrelsomeness, there is nevertheless a proneness to take offence, and to regard as slights and insults, acts which have no bearing in that direction.

Again, there is intense melancholy, without the existence of delusions, and during which the individual may attempt suicide ; or there may be indefinable fear, despair, terror, or shame, leading to the perpetration of self-destruction.

Under this head come the various kinds of morbid fears which, while not confined to persons the subject of chronic alcoholic intoxication, seem to be particularly apt to occur as concomitants of the condition in question. A very interesting case of the kind was recently under my charge, in which a gentleman becoming addicted to the excessive use of spirituous liquors gradually contracted the fear that he would say something profane or obscene if he ventured into the presence of ladies, and hence shut himself up from all female society. Upon one occasion he found himself accidentally in company with a lady of his acquaintance, when he threw up his hands in horror, exclaiming: "For God's sake go away, or I shall be compelled to insult you in the grossest manner. Go, go, go," advancing toward her at the same time and actually turning her out of the room. This has a very epileptiform appearance, but there were no

other evidences of this disease, and on ceasing to drink the morbid fear entirely disappeared.

The more purely intellectual qualities of the mind rarely escape being involved in the general disturbance. The power of application, of appreciating the bearing of facts, of drawing distinctions, of exercising the judgment aright, and even of comprehension, are all more or less impaired. The sense of right and justice which the individual may have had is so weakened or destroyed that he will lie, steal, murder, or commit other outrages, even when there is no provocation. Indeed, the existence of motive is generally a counteracting circumstance.

The memory is among the first faculties to suffer.

But in addition to these evidences of mental deterioration there may be actual aberration of mind, as shown by the existence of delusions. These are generally of a depressing character, and may or may not have their origin in false perceptions of the senses. These delusions may prompt to suicide or other act of violence.

The will is always lessened in force and activity. The ability to determine between two or more alternatives, of resolving to act when action is necessary, no longer exist in full power, and the individual becomes vacillating, uncertain, the prey to his various passions, and to the influence of vicious counsels.

With these troubles of the mind there are almost invariably headache, vertigo, and persistent wakefulness, all of which give evidence of the extent to which the nervous system is affected.

But it is not to be supposed that chronic alcoholic intoxication is induced in all persons who use alcoholic liquors to excess. Some persons are not only able to indulge to an extreme degree with impunity, but may even live to old

age in the enjoyment of apparent good health. Indeed, when Huss published the results of his observations, it was strongly questioned whether the symptoms which he had noticed were not due to the impurities which the whiskey generally used by the lower classes in Sweden is known to contain, rather than to alcohol. Huss admits that since liquor made from potatoes came into use, and especially since it has been distilled from rotten potatoes, chronic alcoholism has become much more frequent. This was attributed to the fusel oil and a peculiar substance called "*stick ;*" but it was ascertained that though these substances may have aggravated the symptoms, they were, in the main, produced by the alcohol. Many here present will doubtless call to mind that in this country a like charge has been made against fusel oil, and that even strychnia has had the reputation of poisoning whiskey and inducing most of the evil effects of excessive alcoholic potations.

It is very certain, however, that chronic alcoholic intoxication very rarely, if ever, ensues on the moderate use of the light German or French wines, or of those made in this country, when they are not fortified by the subsequent addition of spirit, and that it is still less apt to occur from the temperate use of malt liquors.

The diseases of the nervous system which, in addition to those mentioned, the excessive use of alcohol induces, are very numerous. In a paper such as this, the most that I can do is simply to enumerate them.

When I say that it, of all other causes, is most prolific in exciting derangements of the brain, the spinal cord, and the nerves, I make a statement which my own experience shows to be correct. I have already spoken of the remarkable affinity which alcohol has for the substance of which these organs are composed. Experiments hitherto have only re-

lated to the brain, but I have been able to determine that the spinal cord and the nerves likewise absorb and retain alcohol to an equally great extent.

For ten days I fed a rabbit largely every day with bread soaked in whiskey. In the course of that time the animal received nearly a pint of good Bourbon whiskey, and beyond being somewhat stupified it did not appear to be seriously inconvenienced. At the end of the ten days the animal was killed.

I then removed the brain, the spinal cord, and all the large nerves, and treated them separately with distilled water after cutting them into small pieces. They were then thrown upon a filter and strongly pressed.

The three separate portions of liquid extract were then distilled several times, and finally treated with quick-lime, and again distilled. The products were then put into the test-tubes, one marked "A" containing the distillate from the brain, another marked "B" containing that from the spinal cord, and the third marked "C" that from the nerves. The odor from each of these was of itself sufficient to indicate the presence of alcohol, but the test with the solution of bichromate of potash in sulphuric acid is more reliable.

First I took the test-tube marked "A," which contained the distillate from the rabbit's brain, and allowed a drop or two of the test-liquid to mingle with it. A dark-green color was produced.

Next I took the tube marked "B," which contained the liquid derived from the spinal cord. It was smaller in quantity than that from the brain, because the cord is much smaller than the brain. I poured on it a drop of the test-liquid, and again the bright emerald-green color was formed.

Finally, I examined the distillate from the nerves. The quantity here was extremely small, but the test at once

showed it to be alcohol. So far as I know, alcohol has never before been detected in the spinal cord or substance of the nerves of animals which had been fed with it. Neither has it been found in these organs in man. That it is there, however, in alcoholics, there can be no doubt.

Finally, I had the distillate from the blood. I tested that in the same manner, and there was no reaction. The conclusion, therefore, is irresistible, that alcohol has a greater affinity for the nervous tissue than for the blood.

We are now prepared for the long list of diseases and disorders of the nervous system produced by the excessive use of alcohol. The catalogue is made up from my note-books, and is based on cases occurring in my private and hospital practice.

OF THE BRAIN.

Cerebral congestion.

Cerebral hemorrhage, with its consequences, apoplexy and paralysis.

Meningeal hemorrhage.

Cerebral thrombosis.

Softening of the brain.

Aphasia.

Acute cerebral meningitis.

Chronic cerebral meningitis.

Abscess of the brain.

Multiple cerebral sclerosis, one of those diseases of which tremor is a characteristic symptom.

Every variety of insanity, including general paralysis.

OF THE SPINAL CORD.

Spinal congestion.

Antero-lateral spinal sclerosis.

Posterior spinal sclerosis (locomotor ataxia).

CEREBRO-SPINAL DISEASES.

Epilepsy.

Chorea.

Multiple cerebro-spinal sclerosis, another one of those affections characterized by tremor.

Athetosis ; a remarkable disease, which I was the first to describe, and which is now well recognized both in this country and in Europe. The case on which my description was based was one in which the patient was in the habit of drinking sixty glasses of gin daily.

OF THE NERVES.

Anæsthesia.

Paralysis agitans.

Neuralgia, in all situations.

Neuritis.

Neuro-sclerosis.

It will be noticed that sclerosis, or hardening, is a condition to which all parts of the nervous system are subject and which alcohol probably often produces. It is, doubtless, the result of the direct action of alcohol on the nervous tissue.

In addition to being the exciting cause of many diseases of the nervous system, alcohol probably predisposes to various others in which no direct relation can be traced ; neither does its action stop here, for the descendants of persons addicted to the excessive use of alcohol are liable to various diseases of the nervous system, and there is some evidence to show that offspring generated during a fit of intoxication of either parent are often born idiotic.

Doubtless it has been observed that my remarks relative to the evil consequences of alcoholic potations have been

based upon the excessive use. It would be only fair to ask. What constitutes excess? And if the question were put, I should answer that, in the abstract, I do not know any more than I know how much tea or coffee any one can drink with comfort or advantage; how many cigars can be smoked without passing from good to bad effects; how much mustard on beef agrees with the eater, or how much disagrees; or how much butter can be eaten on buckwheat cakes. In fact, I do not know that any of these things can be used without injury. For to some persons tea and coffee and tobacco and mustard and butter are poisonous. Every person must, to a great extent, be a law unto himself in the matter of his food; no one can *à priori* tell him what and how much are good for him. A single glass of wine may be excess for some individuals, while to others it fills a rôle which nothing else can fill. That alcohol, even in large quantities, is beneficial to some persons, is a point in regard to which I have no doubt; but these persons are not in a normal condition, and when they are restored to health their potations should cease. I have seen many a weak, hysterical woman drink a pint of whiskey or brandy a day without experiencing the least intoxicating effect, or even feeling excited by it. The exhausted nerve-tissue has seemed to absorb it with an energy as though it were the one thing craved, and recovery has been rapid under its use when all other means have failed. I have seen strong men struck down with pneumonia and fever, and apparently saved from the grave by brandy or other alcoholic liquors. I have prevented epileptic seizures by its moderate use; neuralgic attacks are often cut short by it, and sometimes entirely prevented. It has been efficacious in catalepsy and in tetanus; it is one of our best antidotes to the bites of poisonous serpents. As I have repeatedly witnessed, in the con-

vulsions of children from teething and other sources of reflex irritation it is invaluable; in the spinal irritation to which women, and especially American women, are so subject, nothing takes its place; and in certain forms of gastric dyspepsia it must be given if we wish to cure our patients. Most physicians know all this as well as I do, and they know that I have by no means mentioned all the diseases in which, so far as our knowledge goes, alcohol in some form or other is the sheet-anchor of our hopes. I would not like to be cut off entirely from the use of alcoholic liquors in my practice, and yet I often try to do without them, for I am fearful of exciting a thirst which will not stop at my bidding. Still, when they are clearly indicated, I give them without self-reproach, feeling that I have done my duty, and that I am no more responsible for the consequences of any after-abuse than I should be for the shipwreck of a child, whom I had, in good faith and with the object of contributing to his welfare, sent on a voyage to Europe.

I would not send my son to Europe to be educated, if I could, in all respects, educate him equally well in this country, neither would I prescribe alcoholic liquors if I could do without them, but I have no right to deprive my patients of the benefits to be derived from a valuable remedy because some people by using it to a shameful degree of excess make beasts of themselves.

I know that I am digressing from my subject; but in view of the great importance of the whole matter I may be excused for a little further wandering.

With reference to the moderate use of alcoholic liquors, it must be remembered that we are not living in a state of nature. We are all more or less overworked; we all have anxieties and sorrows and misfortunes, which gradually in

some cases, suddenly in others, wear our minds and our bodies. We have honors to achieve, learning to acquire, and, perhaps, wealth to obtain. Honors and learning and wealth are rarely got honestly without hard work, and hard work exhausts all the tissues of the body, especially that of the nervous system. Now when a man finds that the wear and tear of his mind and body are lessened by a glass or two of wine at his dinner, why should he not take them? The answer may be, because he sets a bad example to his neighbor. But he does not. His example is a good one, for he uses in moderation and decorum one of those things which experience has taught him are beneficial to him. And why should he shorten his life for the purpose of affording an example to a man who probably would not heed it, and who, if he did, is of less value than himself to society? None of us defend dram-drinking. It is a vile, a pernicious practice; but the instinct that drives men, and even women, to it is human, and we must take it as it exists, just as we are obliged to recognize other natural instincts fully as vile and pernicious. The inborn craving for stimulants and sedatives is one which no human power can subdue. It is one which all civilized societies possess. Among the earliest acts of any people on emerging from savageism is the manufacturing of an intoxicating compound of some kind; and one of the first things a colony establishes is a grog-shop. It was, as Dr. Chambers remarks, "an awful outburst of nature," when, out of 500,000 men who took the pledge in the United States, 350,000, according to the "Band of Hope Review,"* broke it. And he very pertinently asks, "Have the same proportion ever broken vows of chastity or any other solemn obligation?"

But if we cannot overcome the instinct by prohibitory

British and Foreign Medico-Chirurgical Review, Oct., 1854, p 412.

laws, we can regulate it and keep its exercise within due bounds. My own opinion is, that the best way to do this is by discriminative legislation in favor of wines and malt beverages, and against spirituous liquors. I would make it difficult to get whiskey. I would provide that what was sold should be pure, and at the same time I would make it easy to procure light wines and beer. And I would likewise offer every encouragement to the growth of the vine and the hop. Experience has shown that total prohibition, while failing to a great extent in practice, drives men and women to opium and Indian hemp, substances still more destructive to mind and body than alcohol.

Another point seems to require notice. There is a condition—a form of insanity it may be, though I doubt it—known as dipsomania, or, more properly, methomania. It is described as consisting in an irresistible impulse to indulge in alcoholic liquors. Doubtless there are individuals, who, while recognizing the injury which excessive indulgence in alcohol inflicts upon them, are in a great measure powerless to control their morbid appetite. At one time they might easily have refrained, but frequent yielding, and perhaps also the direct action of alcohol upon the brain, have so weakened their volitional power that restraint is well-nigh impossible. Possibly many who pass for ordinary drunkards are in reality methomaniacs; but as I have said, I do not believe in the existence of any such form of insanity. Indeed I suppose there are few of those who are habitually more or less intoxicated, who, in their more sober moments, will not lament their inability to abstain, and curse the feebleness of will and the strength of the appetite which keep them drunkards. For all such the lunatic asylum is the only proper place, so long as they commit no outrage on the persons or property of others. If they

plunge into crime, punishment should follow with as much certainty as for sober criminals. As to confiding in the honor of such people, and allowing them to range at large while nominal residents of an inebriate asylum, I regard it as the supremest kind of folly. What would we think of the wisdom and prudence of a superintendent of a lunatic asylum who would trust to the honor of a patient who had previously attempted suicide, and allow him to go at large on his pledge not to kill himself? And yet this is essentially the nature of the discipline at inebriate asylums. I have never seen a drunkard cured by this kind of restraint and I have seen many who have told me how readily, while patients in such institutions, they procured liquor enough to keep up the desire for more.

In an interesting little book, Dr. Bucknill* combats the idea that the desire which some persons experience to indulge to excess in the drinking of alcoholic liquors is a disease, contending that like other appetites carried to an inordinate degree it is simply a vice. It is difficult to perceive with what reason the taste for alcohol can be classed among the diseases, while a taste for cheese is retained among the appetites. Undoubtedly the excessive use of alcohol is a vice and so is the excessive use of cheese. The one may—having in view the results flowing from it—be a worse vice than the other, but it would scarcely be advantageous to treat either with medicines in the hope of leading to its eradication. Both are to be reformed, not cured. Undoubtedly any excessive indulgence of an appetite may induce disease, and this is, as I have shown, especially true of alcoholic indulgence in its effects upon the nervous system. As a consequence of the structural changes thus brought about, the power of the mind is certainly weakened and the

* *Habitual Drunkards and Insane Drunkards*, London, 1878.

subject of them becomes less and less able to resist his inclinations. Such cases are certainly suitable ones for medical treatment, but the disease is not methomania but some one of the well-known diseases of the brain or other parts of the nervous system, which the excessive ingestion of alcohol is capable of causing.

In my opinion therefore, Dr. Bucknill, while right in his general conclusions relative to the non-existence of a mania for drinking and the inefficacy of the ordinary inebriate asylums, is wrong in condemning Dr. Cameron, M. P., for having stated in the House of Commons that the inordinate use of alcoholic liquors, induces "certain structural alterations especially in the nervous system," and "That the result of these deteriorations of structure rendered the patient unable to resist the craving for stimulants." *

And it is difficult to perceive how Dr. Bucknill reconciles this condemnation with his own statements contained in an address, which he delivered before the Rugby Temperance Association, in which he said:† "It would be difficult within any reasonable time for him to give an outline even of his experience as a physician of the insane, with regard to the production of insanity by intoxicating liquors. It not only produced insanity directly, but by its effects upon other organs which react upon the brain, and by a variety of causes—by domestic brawls and discomfort to which it gave rise; and it also produced insanity to a frightful extent by leaving it as a fearful inheritance to the children of drunkards." It is true that Bucknill maintains, that though drunkenness is not in itself a disease, it is a fruitful cause of disease. He appears however, to overlook the fact that the disease, insanity for instance, thus induced lessens the

* Op. Cit., preface, p. xv.

† Op. Cit., page 1.

individual's power of self control, and hence leads to continued excesses.

Dr. Bucknill has, as I have said, no exalted idea of inebriate asylums, and in this I think all experienced physicians unconnected with such institutions will agree with him. In the speech from which the last quotation was made he says.

"He visited many of the American inebriate asylums, and he came to the conclusion that the gentlemen confined in them were generally rather proud of their position, and felt themselves interesting objects of inquiry. As far as he could observe they were there under a very lazy and shameful pretence, of curing a disease which did not exist, by remedies which were not applied. They had only to walk outside of the walls of the institution to the nearest liquor shop and get as much liquor as they choose to buy, and they could take liquor into the asylum with them. A friend told him that he went into the inebriate asylum on Ward's Island for New York, and visited the rooms of four of these unfortunate inebriates, every one of whom was enabled to offer him a choice of spirits."

Recently the subject of alcoholic use and abuse has been discussed pro and con by several distinguished British physicians and surgeons in reviews and manuscripts, but as they have constituted nothing of any importance to the elucidation of the points at issue, it is not necessary to allude at any greater length to their contributions.

* Subsequently (page 15) Dr. Bucknill says :

"It does not, therefore, seem absurd for me to mention, on the authority of Dr. Macdonald, of the New York City Asylum, situated on Ward's Island, that on the occasion of a visit to the City Inebriate Asylum, situate in the same island, he went into the rooms of four of the inmates, and was by each of them offered the choice of spirits."

CLINICAL CASES REPORTED FROM THE CLINIC
FOR DISEASES OF THE MIND AND NER-
VOUS SYSTEM OF THE UNIVERSITY
MEDICAL COLLEGE.

BY W. J. MORTON, M.D., CLINICAL ASSISTANT.

I.—Spinal Paraplegia from traumatic dislocation of the fifth cervical vertebra.*

Inability to swallow solid food. Reduction of dislocation by extension; almost immediate recovery from severe paralytic symptoms. Deformity of neck resembling tonic spasmodic contraction of the muscles.

July 24, 1879.—T. Baedor, æt. 12: one week previously was thrown violently against a horizontal iron bar, striking on the right side of his neck. It was at once noticed that his head was strongly inclined or "twisted" to the left side. The next day he experienced much difficulty in swallowing on account of a "lump in his throat," found that his jaws would not open freely; that he was partially paralysed in both arms and both legs, and that the head was firmly fixed and incapable of its usual motions. His hands were "burning hot."

Examined at the clinic, patient presented the following symptoms.

Partial paralysis and anæsthesia of arms and legs, flexion at the wrists and swelling of the backs of the hands, a tendency to a talipes varus distortion at the ankles. Forcible extension of the wrists or ankles caused pain.

* Reported in detail in *Med. Rec.*, N. Y., Oct. 4, 1879.

Inability to swallow liquid and inability to fully open the mouth.

The most marked peculiarity, however, was the rigid position of the head and neck in relation to the shoulder; the parietal and occipital regions appeared to be strongly drawn over to the left, while the chin projected out to the right. Any attempt to approximate the head to the right shoulder caused pain and flinching. There were no unusual symptoms about the face and eyes; the tongue came out straight, but was plainly coated white on the right side, and clean and red on the left.

Paralysis on the right side and antagonistic normal action on the left, as also tonic spasm on the left side of the neck were excluded. There was no crepitus; lateral rotation did not modify the distortion, and therefore apparently justified the exclusion of fracture of an oblique process.

A diagnosis of dislocation of the inferior oblique process of the fifth cervical vertebra was made, and an attempt at reduction made.

Moderate extension was of no avail.

Finally the boy was suspended by the head, his body rotated at the same time to the left, and almost in the same moment the jar of the bone returning to its place could be felt.

The patient was lowered to his feet and it was found that his head was now perfectly straight upon his shoulders, and that he could for the first time in a week swallow water without difficulty or pain.

Patient complained of nothing more than a tingling sensation ("as if his crazy bone was being hit,") in his arms and hands.

July 26th. Paralysis and numbness no better, could not walk or use his arms and hands; if assisted to walk he

stepped upon the outer edge of his feet. No troubles of urination or of defæcation.

July 27th. Improved; right side of tongue coated white; left, red.

July 28th. Perfectly recovered. Head carried perfectly straight.

No evidence of having received an injury has since appeared.

II.—Nervous Syphilis.

Crossed paralysis. Impairment of motion on left side, and of sensation on the right side

March 20, 1879, Wm. P——, æt. 33. Jeweler.

Antecedent history: heredity, unimportant: evidence of syphilis fairly conclusive.

Present troubles began two years ago with a gradually increasing numbness and stiffness in the hand and leg of the left side, and paralysis of the left side of the face. Violent headache and sleeplessness had preceded this attack. At this time there was no trouble on the right side. After a few months he got much better.

Three months ago, January 1st, he first noticed that he was losing sensation on the right side. The right hand felt asleep, also the leg. At the same time the impairment of motion of the left side again appeared. Has been obliged to give up his work.

Present condition. Motility: left paresis evident. The left leg drags heavily when he walks. The tendon reflex of this leg is extremely developed. A slight tap of the finger on the quadriceps when the leg is crossed throws the foot up violently. Other reflexes also increased. Can barely raise the left arm. No facial paralysis.

Sensation. Right cutaneous anæsthesia from head down.

ward, well marked. Sensation of heat, cold, pain, touch, etc., dulled to a very considerable extent, experiences also various paræsthetic sensations, particularly the feeling of warm water trickling down the leg. Tendon reflex, this leg below normal.

Has constant headache in right frontal region. Has no ptosis, but has diplopia and some vesical weakness.

Treatment: \mathcal{R} Potassii iodidi, grs. xv, t. i. d., increasing by three drops daily. \mathcal{R} Hydrarg. bichlor. grs. $\frac{1}{40}$, t. i. d.

April 3d. Walking improves; head symptoms disappeared.

July 3d. Now taking grs. 123 of pot. iodid., t. i. d., and grs. $\frac{3}{32}$ of hydrarg. bichlor. Walks better and can work five hours daily.

October 31st. Numerous entries are omitted. Patient now taking 200 grains of iodide of potassium three times daily, and continues the mercury. There now remain no signs of trouble except a slight limp on the left side. The sensory disturbance on the right side has quite disappeared.

III.—Nervous Syphilis.

Repeated attacks of loss of consciousness with signs of unilateral irritation. Limited irritative motor disturbances on right side, particularly of the right masticatory facial group of muscles, and also limited sensory disturbances on same side.

February 19, 1880. J. A. P—, æt. 23. Junkman.

Antecedent history. The only important point is a distinct and admitted history of syphilis in 1875, an initial lesion, bubo, affections of throat, hair, skin, and of late, tibial pain. Additionally cicatrical evidences of the disease remain. For this disease, according to his account,

he was violently salivated at an early stage of its progress and lost several teeth.

In September last had two attacks of complete loss of consciousness, whether of an epileptic or apoplectic and comatose form cannot be determined from his account,—probably the latter,—lasting about twenty minutes each. During the next four months these did not recur, but he was subject to spasm on the right side of his face and head. The lower jaw would draw strongly around to the right side, often times becoming fixed and rigid in this position during several minutes, or again fixed as in trismus without being drawn to one side.

Within the last week he has had three attacks of loss of consciousness. The last occurred on Broadway, and he was cared for by the police. For this condition he asks treatment.

Present trouble. An aborted or rudimentary attack came on while the patient was being questioned. As he describes it, "his breath gets short, his face puckers, he feels choked in bridge of the nose, feels helpless, and cannot speak because he cannot move his lower jaw." As observed in this instance, pulse, 100: pupils fixed; right side of face in a state of tonic spasm—principally in the muscles innervated by the motor portion of the fifth, and by certain branches of the facial. Thus the four muscles of mastication of the right side were evidently the ones which produced the trismus and also the lateral deflection of the lower jaw. The zygomatic, oral and nasal levators were plainly involved, a slight twitching only was noticeable about the right eye. The right arm was in a state of successive spasmodic contractions of short duration. In severer attacks the right leg had been affected in the same manner.

Sensory disturbance consisted principally of a "prickly

sensation and numb feeling" of the right arm. The hand particularly felt numb, and, as he says, "goes to sleep." He rubbed his thumb to restore sensation. The right side of the upper lip feels very thick and is anæsthetic. He has also neuralgic pain in the teeth of his right upper jaw; his tongue gets dry and husky.

The vertical region of the frontal bone burns and feels hot. There is evidence of a recent outbreak of syphilis in the nose. The shin bones are sensitive to pressure.

Treatment: \mathcal{R} Potassii iodidi, grs. xv, t. i. d., increasing by one drop at each daily dose. \mathcal{R} Hydrarg. bichloridi, grs. $\frac{1}{8}$, t. i. d.

February 23d. Pulse 84, pupils normal. On the evening of the 19th, had an attack, during which the right side of the face "twitched" severely and finally "drew up tight," duration, ten minutes—no loss of consciousness. No further attacks to date, though on several occasions he has felt as if they were coming.

No especially marked reflex excitability. Spasms cannot be produced by any form of peripheral excitation.

IV. Progressive Muscular Atrophy.

Atrophy in thenar and hypothenar eminences. Left deltoid affected twelve years previous to present attack. Complication with motor and sensory disturbances of fingers of same hand.

February 20, 1879.—M. K., seamstress, aged 30. No ascertainable neurotic history beyond the fact that her father died of "brain fever." Has had no important early illnesses except as follows:

Twelve years ago, after having sat at an open window sewing, with a cool wind blowing on to the left shoulder, she had an attack of what she believes to have been rheu-

matism. She had at that time much pain in the left shoulder principally at the top and apparently confined to the deltoid. No point was swollen, red or painful. Some few months later she found she could not raise the left arm, and she has never since had any power to elevate it; forward and back movements have remained good.

On examination of the atrophied deltoid a diagnosis of previous "rheumatic paralysis" and consequent atrophy was made.

Patient's present history and symptoms are as follows: Two months ago she felt a continuous pain and soreness between the shoulder blades. Also pains in both elbow-joints, though they were not red or swollen. Soon after she found that the right index finger was numb and impaired in its movements. She cannot now hold her needle; it drops from between the approximated thumb and finger, and for this particularly she desires treatment. The hand presented no sign of atrophy. There were no fibrillary movements. Tactility, sense of temperature, locality, pain and conduction were deadened. Faradic excitability was diminished; applied at the motor point of the extensor indicis but faint reaction was attainable.

Owing to this history as regards sensibility, the absence of atrophy in the hand and the previous history of the case, the patient was treated for simple rheumatic paralysis, by Faradism, strychnia, etc.

Patient was under treatment off and on, sometimes improving sometimes not, until November, when after a prolonged absence she returned, saying that the hand was "wasting" and that now sudden extensor spasms of the finger would occur causing her to drop her needle. She complained further that the "little and ring fingers stuck

together " and that she was obliged to separate them by aid of the other hand.

Examination now showed well-marked atrophy at the thenar and hypo-thenar eminences. Abduction of both the index and little fingers was impossible, the external interossei particularly being affected. The principal loss of muscular substance and consequent loss of power was found to be in the adductor and opponens policis; the flexor-pollicis was comparatively intact as well also as the abductor. The affected muscles named gave but faint response to Faradism, while those immediately contiguous and sound gave the normal reaction. At times she has tonic spasmodic action of the fingers, but never of the thumb.

In spite of the somewhat irregular combination of anæsthesia and spasm there seemed to be finally little doubt but that the case was one of progressive muscular atrophy; the spinal disturbance (if spinal) in this instance having extended over not only trophic but also neighboring motor and sensory areas.

January, 1880.—The treatment has been varied and now consists of hydrargyri bichloridi grs. $\frac{1}{3}$ t. i. d., but the disease is evidently progressing, though for the present not extending to other parts than the hand.

V.—Nervous Syphilis.

Amnesic aphasia.—Agraphia.—Right paresis, with history of antecedent syphilis.

September 11, 1879.—Timothy M., æt. 45, occupation, truck-driver. Had syphilis four years ago. Three years ago was under treatment by Dr. E. J. Hogan of this city for secondary symptoms, and is by him now referred to the clinic. After this attack regained good health and went

to work. Present troubles began seven months ago (March, 1879), with severe and continuous headache in the frontal region. This lasted two months, during which time however, he attended to a certain extent to work. Suddenly one day at the end of this time, upon going to deliver some goods, he found he was unable to speak or write a word. He comprehends written and spoken words perfectly. He did not lose his consciousness then or at any time, and was not paralyzed in any member or organ. In spite of inability to speak, he continued to work until two weeks since, when graver symptoms began to appear. These were a partial paralysis of the right side of the face and of the right side of the body.

Present condition, right facial paresis, right hemiplegia, and complete amnesic aphasia. Sensibility on the paretic side is unimpaired. No rigidity of muscles; they react normally to faradism. He is emotionally susceptible,—laughs and cries on slight provocation, and is irritable in temper, and often melancholy. He gets much confused, and bothered on attempting to answer questions addressed to him, but brings forth no sound, merely shaking his head in despair at his inability to reply. A few weeks after he was first seen he could say yes or no, but could not yet control the choice between these two words which sprung forth automatically, and he was therefore often obliged to correct the spoken word by a contradictory affirmative or negative nod of the head, recognizing as he did this his knowledge of his error by smiling or by signs of impatience and anger.

When at this time, asked his name and told that he could not give it, he resented the assertion and set about trying to fix his memory upon it and bring it forth, and finally after some moments of silence and abstraction would give up the attempt. But if his name were now spoken to him,

he looked relieved and repeated it, though in a measured manner after the speaker. If the speaker said "Timothy Mead," he would possibly repeat the two words, though oftener he could say but the first, so quickly had the impression made by the second been forgotten. Asked where he lived, no sound came forth in reply; say to him New York, and he repeated it. If asked now again where he lived, he could not again say "New York;" his capacity for repeating did not extend beyond from one to two words. Of these words he could repeat but the first, or at times the first and second.

R Hydrarg. bichlor. grs. $\frac{1}{4}$, t. i. d., and R potassii iodidi, grs. xv, t. i. d., increasing by three grains daily.

October 9th. Has improved slightly in his ability to repeat words, though whether due to training received from his wife or to medicine is difficult to say. He can now say "New York" twice successively, but fails to say it a third time. Facial paralysis is also improved.

October 16th, 31st, December 4th. About the same.

December 18th. Now taking 93 grains of iodide of potash three times daily, and $\frac{1}{3}$ of a grain of hydrarg. bichlor. All his symptoms are much improved. The facial paralysis has disappeared. The paresis is scarcely distinguishable, his emotions are more under control, and he has a voluntary vocabulary of some dozen words, and is able also to repeat a greater number of words in succession. This improvement in the aphasic symptoms has been aided by some instruction from his wife.

January 25th. Improving rapidly. When interrogated "how are you," he replied promptly, "I'm pretty well." In reply to the remark, "this is the 25th," he said, "oh yes, so it is." Further conversation however was very fragmentary,

and he could not answer other questions, though evidently comprehending them and making painful efforts to answer.

Grip of right hand not yet so good as that of left. Some pain in right arm and also in his head. Has no limp in his gait. He used to cry on seeing strangers but does not now. His wife says he is not so "frightened-like" when spoken to.

He was now asked to write,

"Timothy Mead, New York, January 25th. This is a pleasant day. We will go to the park."

With much prompting he wrote the following:

Timthy Mead New n th n4th Shalle plelle dad. W willst Gaurig pund.

He is now physically feeling so well, that in spite of his deficient speech he wishes to go to work, and was told since a family depends upon him for support that he might do so. Treatment continued.

VI.—*Epilepsia gravior.*

Irregular form of attack, beginning with bilateral clonic spasms of face, arms and legs. Facial contortions accompanied by pain. Seizures induced at will by peripheral irritation from the hairs of the head on the vertex or pressure upon the scalp.

H. G—, æt. 42, tradesman. Previous to his present troubles he has always been well. No discoverable history or signs of syphilis. Three years ago, in June, on a very hot day, fell insensible in the street; was said to have been sunstruck. In November following occurred a group of symptoms lasting about three days, as follows: He could neither sleep nor eat, was dizzy, and some of the time "out of his mind," though he did not lose consciousness; he also vomited often. After this attack he got along pretty well for a year, when he went to the Mt. Sinai Hospital, with a

recurrence of about the same symptoms just detailed. Seizures or "cramps" as he terms them, made their first appearance while he was at the hospital, occurring sometimes as often as once or twice a day, and sometimes not oftener than once in a week or fortnight. During the cramps which preceded the loss of consciousness by intervals varying from a few minutes to hours, the head was sometimes held fixed by a tonic spasm to the left or right side, or backward. At other times the jaws were locked. The aura is distinct and of two varieties, apparently in one instance a mixed visceral and sensorial, and in another, vaso-motor.

In the first he sees bright lights of all colors, like myriads of stars dancing before his eyes, and feels at the same time epigastric distress advancing upward to become severe constriction in the throat. If he then lies down quickly the attack may exceptionally pass over, though as a rule it does not.

In the second, the left ear gets fiery red, and feels "boiling hot," while the right ear feels like ice. This fact was verified as to external appearances in color and difference of temperature to the touch. He says that "if the heat goes around from the left to the right," the impending attack will pass off, but "if it goes to the top of the head," he falls unconscious.

He mentions also certain other prodromatic shooting sensations of the nature of an aura, occurring in his arms and legs. His head often feels "painful and sore" for several months at a time. At such periods, noises, especially when shrill and sharp, occasion him much distress; certain sounds will produce a seizure with cramps and loss of consciousness. Music has often given him an attack. At these times he cannot wash the top of his head without producing a seizure.

The patient was under observation for a short time while at the clinic, and had several seizures, the first of which occurred spontaneously without extraneous peripheral excitation. When first seen a half hour before loss of consciousness, he was observed to have strong facial contortions with slight twitching in the arms. The most marked of the facial movements were occasioned by clonic spasms of the levator labii sup. *alæque nasi*, the levator proprius and levator anguli oris, this to such an extent that all the upper and front teeth were exposed, reminding one of a snarling dog. The orbicularis palpebrarum was markedly affected, also numerous other facial, throat and neck muscles.

Soon the patient became aware of the usual aura, and asked to lie down; his face became pallid, pulse 84, and pupils dilated; the light convulsive twitchings seemed to extend all over the body, while those about the face increased in severity.

This while consciousness was still retained, for he complained of the pain occasioned by these involuntary movements; the motions of the left arm were the most pronounced. After two to three minutes the general movements became more and more developed, and within a few more minutes arms, legs, and facial muscles were in furious back and forth motion—the arms playing rapidly to and from the median line, the legs flexing and extending, principally bending at the knee or ab- and adducting at the hip, and the facial muscles alternately contracting; these motions were not in the least choreiform and diverse. Tonic convulsion with opisthotonos then ensued; there was no cry or biting of tongue or cheeks; the tonic seizure was of brief duration and immediately succeeded by the clonic condition just described. No complete relaxation of the muscles occurred, and shortly the patient regained consciousness, al-

though the lighter form of clonic spasms did not cease. He complained now of constriction and pain at the throat. In a few minutes he seemed to be quite calm, with no signs of disorder except the usual congested face and eyes. Pulse, 96. The whole series of attacks lasted about ten minutes. There was no doubt that consciousness was abolished.

After this attack the patient was taken before the class and the case commented on by Dr. Hammond.

Attention was first called to the unusual order in which the spasms occurred; first the clonic and then the tonic, and so on, constituting in reality a series of fits, lasting in this instance, according to the history of the case, sometimes for several hours, while the ordinary classic epileptic seizure usually lasted no more than from three to eight minutes. Here, contrary to custom, the clonic spasm appeared first and that too accompanied by pain. The association of pain with the spasm was unusual, a condition of affairs analogous to *tic douloureux* or painful spasm. In this latter disease there appeared to be a strong epileptic tendency, a state in which the epilepsy was not fully developed.

It seemed scarcely justifiable, however, to go to the lengths pursued by some observers, such as for instance, Dr. Hughlings-Jackson, and say that if a man has a spasm anywhere with pain, that it is a minor degree of epilepsy. This could not be easily born out by the facts in the case. Nor further should one place under the general head of epilepsy, as had at least one observer (Griesinger) cases of migraine or sick headache, vertigo, syncope, etc. This was making epilepsy too comprehensive in its reach.

Perhaps the most interesting feature of the present case was the ability to produce in the patient a seizure, by means of making a very slight peripheral irritation; in this instance a simple touch to the hairs of the head,

though sometimes this also was not sufficient, and slight pressure upon the scalp was required. The same patient, too, would not respond at all times to the the excitation, though usually he would. This extremely susceptible condition generally lasted for several days at a time, occurring at intervals scattered over several months.

While commenting on this peculiarity the speaker passed his hand lightly over the vertex and inadvertently touched several of the more prominent hairs, whereupon the patient immediately began to have an aggravation of the clonic spasms; in a few minutes his whole body was in violent motion and he slid out of the chair on to the floor in a severe tonic state of convulsion with loss of consciousness.

And again, some twenty minutes later, the patient's wife during certain ministrations to her husband's comfort, thoughtlessly passed her hand across the top of his head, and again the attack came on with as much violence as previously. Thus two successive demonstrations attested the truth of the patient's statements as regards the location and causative force of the peripheral excitation.

Dr. Hammond recalled several cases he had seen of epileptic seizure, produced reflexively by peripheral irritation. In one there was a small limited area on the right side of the neck, though not in the so-called epileptic zone. In another, a tight shirt collar had been found to be the exciting cause. In still another instance the seizure could be induced by pressure upon the scalp, but the presence of a cicatrix was found to account for the seizures which ceased entirely after the cicatrix had been excised.

In Brown-Séquard's case a young man had a convulsion every morning when he got out of bed. This eventually was found so be due to a grain of sand imbedded beneath the toe-nail which caused irritation whenever the foot sus-

tained the weight of the body. Upon removal of the foreign body the convulsions ceased.

Dr. Hammond had a similar case in which a piece of glass had become deeply lodged in the forearm. Six months after this accident, epileptic seizures were developed with an aura from the arm. The glass, until then supposed to have been removed, was discovered upon making an explorative incision, and complete recovery followed.

In regard to trephining the skull, at a spot known to have suffered injury by fracture, and suspected of being the exciting cause of seizures, the speaker believed thoroughly in it. He had trephined more than thirty times in such cases, and in no case had had a fatal result, but in most cases had effected a cure or positive relief. As regards mortality the operation had, of course, in its favor the fact that the dura mater in trephining for epilepsy was not injured.

The symptoms and peculiarities of epileptic vertigo were then referred to particularly in their medico-legal aspect, and cases related of persons who, during a prolonged attack, had been unaware of singular but apparently conscious acts, and who had suddenly disappeared and gone about for several days and were afterward found to have no recollection of their acts during this interval.

The present case was one probably of vertical subacute-meningitis, or meningo-encephalitis.

For treatment the following was prescribed: \mathcal{R} Potassii iodidi, grs. xxx, t. i. d., increasing by three grains daily.

\mathcal{R} Sodii bromidi, grs. xv, t. i. d.

Cutting off the hair was proposed but abandoned as impracticable in the patient's present condition.

Sunday, January 25th. Treatment began Friday morning. On this day had two seizures. On Saturday, one; on Sunday, none.

Reports that the spasms in the face have not ceased since last Thursday. His vision is very defective. There is evident paresis of the orbicular recti. The levators of the lip and nose still act spasmodically, strongly displaying the upper teeth; the left orbicularis is now principally in motion, and the head jerks forward, and also sideways frequently.

The lighter facial movements do not occasion pain, but the severer ones, particularly certain clonic trismic contractions, occasion severe pain.

Has constant headache. He feels sleepy but hears every sound. Eyelids feel heavy. Pulse, 80.

Thursday, January 29th. The seizures with loss of consciousness have not recurred since last record; the facial contortions continue, though less marked.

The patient, owing to his inability to buy his own medicine, now gave up coming to the clinic, and has not since been heard from.

VII.—Sub-acute myelitis transversa.

January 7, 1879. John Lind, teamster, æt. 43.

Eight months ago fell down stairs. He remained twelve hours unconscious. Then remained five weeks in bed without moving any part of his body except his head. Sensation and motility seem to have been very completely lost, for not only could he not move his limbs, but he could not tell that he possessed these members; his wife fed him. A physician called at the time of the accident spoke of no evidence of fracture or luxation of a vertebra.

No neurotic hereditary history or further antecedent points bearing upon his present condition.

Present troubles. No disturbance of the brain or cranial nerves.

There is a "sore spot," *i.e.*, painful, both with and without pressure at the seventh cervical vertebra.

Motor disturbances. Has a characteristic spastic gait, but not extremely marked. Both arms and legs are somewhat paretic, but chief difficulty arises from a feeling of "stiffness" in all the muscles below the neck. The calves of his legs feel stiff, also his arms; he is much subject to twitching movements of the limbs, often to very severe spasmodic jerks causing a sensation which he compares to a blow from a club. This occurs mostly in the extensors of the arms. He also gets severe cramps in the calves of his legs. He complains much of tremor, not originated or increased by coordinative movements. His arms are so unwieldy from stiffness that he cannot cut up his meat-food, nor button his shirt collar.

Sensory disturbances are also marked; there is, however, no sensation of pain, with the exception of that attending spasmodic action of muscles.

Cutaneous anæsthesia to the usual tests is well marked. He says he has no "fine feeling" in his hands; his limbs feel numb and "sleepy." He has "hot and cold sensations; his back particularly feels cold and stiff, while at the same time he feels a "heat in the arms."

Motility and sensibility are affected equally on both sides.

No trophic disturbances observable.

Tendon reflex increased; ankle clonus not attainable; musculo-faradic excitability active, but no comparative tests of course could be made.

No loss of flesh or appetite.

No paralysis of the sphincters, sexual power diminished.

Treatment: Direct galvanization of the cord. Improvement considerable.

VIII. Treatment of Chorea by Arsenic.

CASE 1.—*Sept.* 26, 1879.—Lottie Carbine, æt. 9. No history of rheumatism; no heart trouble; has been affected with convulsive movements steadily for two years; chorea unilateral, the choreic movements affecting the right hand, arm and shoulder; muscles of respiration also involved; the right leg parietic; speech difficult. No mental or sensory troubles, but feels very tired and has much headache.

Treatment.—Liq. potassæ arsenitis, gtt. v, t. i. d., increasing the daily dose by one drop each day. Swelling under the eyes, nausea and complete cessation of the choreic movements appeared simultaneously when at gtt. xi, t. i. d.

Jan. 30th.—Patient returned with a slight relapse; treatment recommenced; the full physiological effects were twice brought about before the movements were finally controlled, and on Feb. 20th she was quite recovered.

A final report in June showed no further relapse.

CASE 2.—*March* 27, 1879.—Chas. Liberati, æt. 5. Neurotic heredity. Two weeks ago had acute inflammatory rheumatism. From this attack he seemed to recover rapidly. Then two days ago were noticed jerking of the right hand, arm and leg, and impairment of speech. The movements to-day are violent and bilateral as regards trunk and face, unilateral as regards extremities. It is necessary to hold him in order to give him food or allow of urination. He cannot walk; in making the attempt he is thrown down; has slight ptosis of right upper eyelid; left eyelids twitch (probability of predominant lesion in left hemisphere); pupils normal; pulse 90; heart, organic mitral murmur.

Treatment as in Case I.

April 3d.—Parents report that the child died to-day sud-

denly. He threw up hands, complained of pain, and died almost instantly. No post-mortem could be obtained though there can be little doubt that embolism of the heart existed and caused death.

CASE 3.—*April 24, 1879.*—Addie Weinberg, æt. 5. According to her parents' account has had diphtheria, followed by "pulmonary congestion," and three months ago severe rheumatic pains.

Present convulsive movements began four weeks since. The child is emaciated and weak; has a leucorrhœal discharge; pulse, 120. Movements bilateral; they exist in the face, trunk and extremities; the face especially is constantly contracted.

The child cannot speak a word, though previously a great talker; she communicates her wants by signs of the head and hands. Food, particularly liquid, is often cast out of her mouth by convulsive action; cannot walk or stand; is very irritable; movements of the extremities persist during sleep. Examination of the heart shows a loud mitral murmur.

Treatment same as in Case 1.

May 1st.—Patient worse. Pulse, 148; movements increasing. R̄ tinct. digitalis, liq. pot. arsen. āā gtt. xvij, syr. tolut. ℥ iv, aquæ ad ℥ iij, ℥, ℥ j every four hours.

May 3d.—Better. Pulse, 120. Added salicylate of soda to treatment.

May 9th.—Pulse, 120. Appetite better; child looks better; cannot talk; the aphasia apparently merely ataxic.

May 16th.—Eats well; sleeps well; heart action not as violent as formerly; begins to talk.

A month later her parents report that she is running about comparatively well, no choreic movements remaining. Talks well.

CASE 4.—*May 2, 1879.*—Emma Jennings, æt. 14. Had an attack like the present one, of three months' duration, two years ago. Heredity good. No history of rheumatism. Present attack began two months ago. The movements are unilateral, involving the right side of the trunk and face and the right arm. The right leg is paretic, and she consequently walks quite lame; she cannot hold any object firmly in the right hand. Impairment of speech marked.

Treatment.—Liq. pot. arsenitis gtt. iij, t. i. d. increasing the daily dose by one drop.

May 9th.—Now taking gtt. x, t. i. d. This amount caused vomiting and swelling beneath the eyes. Choreiform movements not so well marked. Told to go back to original dose and follow same directions as before.

May 16th.—Walks much better, and movements about the mouth are better, but she still has slight twitchings in the hand. On Monday, the 12th, went back to four drops, on account of nausea. Now taking eight, three times daily.

May 23d.—Reports that twelve drops three times daily made her eyes swell. All of her symptoms now ceased, and a week later she reports that they have not returned.

CASE 5.—*May 2d.*—John Mannahan, æt. 8. No rheumatic history. Present trouble began three weeks ago, and is confined to the right hand and arm.

Treatment.—Liq. pot. arsenitis, gtt. iij, t. i. d., increasing.

May 9th.—Swelling of eyelids and nausea at 9 drops three times daily; recommenced treatment at three.

May 16th.—Discharged, well.

CASE 6.—*May 9th.*—Mary Liebersohn, æt. 14. No rheumatic history. Had chorea when 10 years old; subsequently no symptoms of it appeared for four years, when she,

in the first place, had chills and fever, and then, four months ago, a return of the chorea: movements bilateral, both arms and in face and trunk; right leg is stiff and weak. Speech impaired; muscles of respiration involved, and has palpitation of the heart. No organic heart lesion ascertainable.

Treatment same as in other cases. Full arsenical effects produced at gtt. xv t. i. d.

Patient quite recovered in three weeks.

CASE 7.—*July 9th.*—Mary Carroll, æt. 15. Hereditary history of severe neuroses; sister had chorea; about one year ago had convulsions during which she lost consciousness, "worked" her body, and seemed much oppressed and slept heavily after they were over; had about a dozen such fits during six months; during this same period had bad headaches. About six months after this, suffered from what according to her mother's account of it, was apparently sub-acute articular rheumatism. After two months of this, her present troubles began. She first noticed that she dropped things out of her hands, then the present condition of violent and uncontrollable jerking motions came on. As observed at the clinic, she can scarcely walk and is in constant danger of falling, nor can she speak intelligibly; she brings words forth in a jerking and disconnected manner. Movements are chiefly confined to the right side, the right arm and hand increasing in their motions, the right shoulder is constantly drawn out of position giving her a deformed appearance, but about the face the motions are bilateral, particularly about the mouth. Her mother states that these movements continue, though much less violently during sleep. Patient now requires constant assistance in dressing, eating, etc., and has been obliged to give up her

position as shop-girl. No mental or sensory troubles; heart sounds normal. R Liq. potass arsenitis, gtt. iij, t. i. d., increasing by one drop at the daily dose.

July 17th.—Began the treatment only five days ago, now taking gtt. viij. t. i. d. Marked improvement; can now dress herself, a thing she has not done for some months; speech still much impaired and some movements continue.

July 26th.—Lower eye-lids began to swell at gtt. xv. t. i. d. Speech much more distinct, still slight movements.

July 31st.—Yesterday was taking gtt. xx. t. i. d., and as the symptoms she had been warned to expect, viz., swelling of the eye-lids, nausea and vomiting came on, she went back to the commencing dose of three drops. All convulsive movements are now absolutely quiet; the patient speaks clearly, walks perfectly naturally, can dress herself with ease and knits a little. The movements of the shoulder ceased first. Her appetite is unimpaired and she is in perfectly good health.

August 14th.—Reports that she is still quite well. Placed upon tonic treatment to be continued for three months.

CASE 8.—*August 21, 1879.*—J. Bruckman, æt. 9. When two years old had a "terrible fit" lasting two hours, consciousness was lost and the body in convulsions; after it the face was drawn to the right side. At a later period had a "burning fever and pain all over;" nothing further in regard to a rheumatic history could be ascertained. Was pretty well up to March last when present troubles began. The right hand began to twitch and he could'n't take hold of objects with it; this hand "worked" even in his sleep, similar movements soon appeared in the whole right side and in the face; he would project his tongue forward and sometimes bite it. At the same time his temper became irrita-

ble, and as his mother says "ugly." Thinking some of his trouble was due to his bad disposition, his mother used to tie his left hand, in order to make him use his right. Within the last few months similar movements have begun in the left side and ceased somewhat on the right. Patient is now in a pitiable condition. Violent jerking movements take place principally on this left side. On attempting to walk he is liable to throw himself down, he cannot play with children because upon getting excited, the violence of the muscular movements increases and he immediately falls. Heart sounds normal. He is timid and gets "frightened looking," or else is bad tempered or perverse, cries with no apparent reason. \mathcal{R} Liq. potass arsenitis, gtt. iij. t. i. d. in increasing doses.

August 21st.—Now taking gtt. ix. t. i. d. Movements the same mornings, but better during the day.

August 28th.—Full effects of the arsenic at twelve drops. Patient much quieter, but movements still continue.

This patient was carried three separate times up to the full effects of arsenic, and was finally at the end of two months discharged well

CASE 9.—August 27th.—Maggie Clark, æt. 22. Present trouble began eleven years ago after a fall in the ice, from which she lost consciousness. "Off and on" since that time has had convulsive movements in the right side. About a year ago these began to be more troublesome; they are now chiefly confined to the right arm and hand, they are much increased if she gets excited or tired. Has headache; no impairment of speech, mental or sensory troubles beyond that mentioned. Never had rheumatism. She has a pain in the middle finger of the right hand. Heart sounds and pulse normal. \mathcal{R} Liq. potass arsenitis,

gtt. v., increasing doses; nauseated and eyelids swollen, at twelve drops three times daily. After two repetitions of this full effect, discharged well.

CASE 10.—*August 27th.*—Nellie Adams, æt. 14. Never had rheumatism or “fits.” Choric movements bilateral and neither severe nor constant. Had a similar attack in August two years ago, lasting six months; the right side alone was thus affected. Now both the hands and the muscles concerned in articulation, are involved. Her principal trouble is a difficulty of articulation; she can scarcely be understood. The left leg is slightly paretic; appetite bad. ℞ Liq. potassæ arsenitis, gtt. iv., in increasing doses.

September 4th.—Stuttering, as she calls it, much improved; walks better; twitching less; appetite much better. Eyelids swelled at gtt. vij, t. i. d. The full arsenical effects were brought about a second time at gtt. xij, and patient was soon after discharged perfectly recovered in speech, gait and convulsive movements.

CASE 11.—*September 4th.*—August Maresch, æt. 11. “Walks like a drunken man.” Choric movements bilateral. Makes all kinds of involuntary movements with hands, feet, head and back. Has spells when he gets contortions, lasting ten minutes. Some days he is much worse than others. Has been in this condition for two months. Had always been perfectly well before this. No history of rheumatism; heart sounds normal. Face chalky white, and “black under the eyes.” Mind intact; speech impaired.

℞ Liq. potassæ arsenitis gtt. iv, t. i. d., increasing doses.

September 11th.—Physiological effects of the arsenic at 11 drops t. i. d. Patient much better.

September 25th.—Second time, beginning with four drops,

patient reached fifteen: now at five drops. General health is very much improved, and no evidences of chorea remain. Advised to take three drops three times daily for a month.

CASE 12.—*November 13th.*—Minnie Howard, æt. 11. No history of rheumatism. Had a similar attack one year ago. Has had headaches. Choreiform movements bilateral, head constantly in motion, and face subject to constant grimaces. Tongue also frequently projected. No mental or sensory symptoms. Pulse 130, and thready.

℞ Liq. potassæ arsenitis gtt. v, in increasing doses.

November 20th.—Swelling of eyelids and nausea at gtt. xj, t. i. d.

December 4th.—Full effects of arsenic were produced the second time at gtts, ix, t. i. d.

No convulsive movements have occurred since Nov. 20th. Pulse, 70. Discharged cured.

CASE 13.—*December 11, 1879.*—Abel Bronse, æt. 10. No history of rheumatism.

"Twitches his legs and squirms his shoulders about"—this involuntarily. Choreiform movements bilateral and exhibited at one time or another in almost every muscle in the body except sphincters and aural. He is subject to the occurrence of "spells" when these movements become very severe. At such times, when he becomes aware of their approach, he runs screaming and in a state of great fright to his mother for protection. His own description is that he first feels a choking sensation; that he then gets a toothache; that it then runs up in front of his ear, causing him much pain; that he then gets dizzy and frightened, and begins to scream and jump. This "spell" lasts about ten minutes. He doesn't fall or lose consciousness; he knows about everything going on around him. Such spells occur

many times a week. So far as this description goes, it might well apply to an epileptic aura; these "spells" are probably of this nature; but additionally constant choreic jerkings were evident upon examining him, most marked in the legs. He has been punished several times in school on account of these involuntary motions, and oftentimes crosses his legs firmly to prevent them. Facial and orolingual muscles are not involved. Heart sounds normal.

℞ Liq. potassæ arsenitis gtt. iv, increasing doses.

December 18th.—Much better. Gtt. x, t. i. d., to-day.

December 22d.—Gtt. xij made him vomit. Not a single attack since last record. Directed to take gtt. iii, t. i. d., for a month.

January 7th.—Attacks have not returned. Discharged well.

These few cases of chorea have been selected as evidencing the value of arsenic in their treatment. No one of the cases has ever returned reporting a subsequent relapse, thus showing that the effect of the drug was not simply efficacious in relieving all the symptoms of the disease during the brief time of its use, but that the cure effected was permanent, at least until the next corresponding season of the year. In most instances a single production of the full physiological effects of arsenic is sufficient to arrest all the choreic motions. But if the least indication of involuntary twitching remains in a single finger even, it is found advantageous to carry, for the second or third time even, the arsenic up to its full effects.

The tolerance of the little patients to the increasing doses is worth noting. In one case a girl of eleven years, not reported on account of the existence of complications, the dose went up to twenty-seven drops of Fowler's solution three times daily. In another one of the above cases twenty

drops three times daily were taken. Comparing ten of the preceding cases, it will be found that at an average age of 11 years twelve drops of Fowler's solution three times daily is required to produce the desired full effects of the drug, and, as a consequence, a cessation and cure of choreiform movements. Experience would seem to prove that a failure to cure by this remedy the simple form of chorea (not post- or pre-hemiplegic) seen in children, is due to not pushing its administration to sufficient limits. Nor is what is gained in one direction by heroic treatment lost in another, for in all instances the patient's general health has been found to improve.

IX. Traumatic Epilepsy.

Trephining and cessation of the epileptic seizures.

May 15, 1879.—T. S., æt. 32. Nine months ago received a severe wound on the right upper frontal region, inflicted, as supposed, with an iron "ice pick." Examined by the physician summoned, Dr. C. T. Jewett, of this city. A circular hole about the size of the little finger was found penetrating to the brain. A few hours after the injury the patient had a severe convulsion, lasting about half an hour. The next day, however, he drove his truck, and remained very well up to a few days since, when he began to have convulsions. The patient was referred to the clinic by Dr. Jewett.

On examination the patient's general health appeared to be good; a cicatrix and an apparent depression of bone beneath were easily ascertainable. Trephining was proposed to him and accepted.

May 19th.—The patient was etherized and trephined by Dr. Hammond on the outer circumference of the depressed bone. One-half of the button was of the normal thickness

of the skull, while the other, the portion which had included the injured portion of bone, was increased in thickness by nearly a half. The remaining portions of the depressed inner table were then removed by instruments without injuring the dura-mater, and the wound dressed with cold water dressing.

May 22d.—Wound healing by first intention; no signs of inflammation; no pain and no increase of temperature.

Dec. 4.—Has had three mild attacks since the operation, the last one two months ago, but all without loss of consciousness.

X. Intra-Cranial Syphilis.

Ptosis, diplopia, delirium.

May 15.—A. M., merchant, æt. 34.

Contracted syphilis fifteen years ago. Presents at present pigmented syphilitic cicatrices on the lower leg and in other regions. A diffused sensitive spot over the sternum, and a gummatous nodule on one tibia, also a congested throat. His brother states that the patient complains that the nodules in the tibia and sternum become peculiarly painful at times of sexual intercourse. Patient has had three children, now alive and well; his wife has had no miscarriages. The recent outbreak of syphilis in other parts seems to have been coincident with his cerebral troubles.

Present symptoms began eight days ago with severe headache, delirium at periods of five or six times daily, constant vertigo, a dull sleepy feeling except when delirious, has ptosis of the right eyelid and diplopia.

Of the ocular recti muscles, the internal rectus on the right side was chiefly affected; the external on the left had also lost power. The pupil was affected slightly; it was somewhat dilated.

Assuming the diagnosis of intra-cranial syphilis of the character of a localized basilar meningitis, the patient was given, hydrarg. bichlor., grs. $\frac{1}{8}$ t. i. d., and iodide of potash, grs. xv t. i. d., increased by three grains daily.

May 22d.—Sleeps better; no delirium. Ptosis improved. Still sees double with the right eye, and is still sleepy and dizzy.

May 28th.—All the symptoms much better.

A month later patient was reported to be quite recovered.

XI. Right Conjugate Deviation of the Head and Eyes (Oculo-Motor Monoplegia?), with left Brachial Monospasm.

Mary Harney, æt. 19.

Antecedent history and heredity unimportant. Has attacks about twice each night, and once every morning as soon as she gets out of bed; sometimes also during the day. She has been obliged to give up work in consequence of them. She never, as far as she or her mother knows, has lost consciousness.

During conversation with her at the clinic, an attack occurred which afforded an idea of their nature. Exclaiming that now she was going to have one, her head suddenly swung round to the right side and the left arm was thrown out in rigid extension outward and backward, the whole attitude as if expressing aversion to some object before her.

During the half minute of tonic spasm which ensued upon her exclamation, the following points were noted: Upon turning her head straight and then letting go of it, it instantly turned back again as far as possible to the right; both eyes were turned to their extreme limits later-

ally, to the right: the pupils remained of the same diameter; in addition to the extension of the arm outward and backward, the hand and fingers were in a state of hyper-extension. Soon, with a sigh of relief, she exclaimed, "It is over." To all appearances consciousness was retained. This she affirms to be true, and in evidence of it cited the forcible effort to straighten the head which she was aware of and recollected. Her mother stated that this was the usual form of attack.

Viewed as a cortical affection, the symptoms noted would seem to be an irritative disturbance of the right brachial, and destructive or abolishing disturbance of function of the right oculo-motor centres. The recognized association of convulsive and paralytic phenomena, caused by the same process of disease, involving in different degrees distinct but contiguous cortical motor areas, would favor this view. It is more than likely that the convulsive attack in the arm will gradually become a paresis of the same limb, with a possibility of extension to other parts of the same side.

In the haste of a crowded clinic fuller examination was postponed until another day, and in the meantime she was ordered bromide of sodium.

Unfortunately the patient has not since appeared, and her further history could not be recorded.

XII. Hallucinations of Hearing, not becoming delusions.

CASE 1.—Mrs. B., æt. 31. Has heard noises and voices, with no external source, for the past year. She says that this trouble appeared suddenly upon taking brandy and iced drinks. Voices say, "Its certain you're going to die and leave your children," etc. She also hears "cursing and swearing." The words and phrases heard are not always

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the same. She recognizes the falsity of the sounds. Examination revealed no trouble in the external ear. The symptoms entirely disappeared in one month by the use of the bromides.

CASE 2.—Daniel B., æt. 50. Has been a "hard drinker." Nine months ago stopped it, on account of the unaccountable sounds he heard; but though he now is perfectly temperate these sounds have not ceased. They say, "Go and drown yourself," "Throw yourself into the river;" they then call him most evil and vile names. Even while he is relating his symptoms they say, "Go home," "What's the use of seeing a doctor?" These voices do not always repeat the same phrases; they say "anything a man can talk;" they are loud and constant, and often wake him up in the night; they never say pleasant things. At first he thought they were spirits, particularly devils, but he is now pretty well satisfied that "they are in his system." He knows that his trouble is "all in frame." No inspissation of cerumen or external ear trouble was discovered.

Under treatment of grs. xxx, of bromide of potassium three times daily, kept up for two weeks, these hallucinations entirely disappeared.

These two cases possess a certain interest from the fact that the hallucination was recognized as such by the patient, and thus, not being a delusion, was not to be in anywise considered as evidence of insanity.

CASE 3.—*March* 18, 1880.—Margaret H., æt. 32. Fell down a few steps some five months ago, and struck on the back of her head. She immediately had a "light feeling" in her head, and within a few days after this fall began to hear strange voices and words addressed to her. At first she thought they were "voices from hell and heaven," "that

her dead husband was talking to her," but now the voices are more worldly, and have become unpleasant and threatening; they say "different things;" they call her "bad names," they say she is going to die—all this in a loud tone and nearly continuously all day. They only occur while she is awake; they do not rouse her from sleep. She often closes her ears tightly, and still she hears the voices. Her mind is not imposed upon by these hallucinations; she recognizes their centric origin, and is thoroughly satisfied that they are unreal.

No physical cause for her condition could be ascertained, nor did evidences of hysteria, melancholia or other trouble exist.

Treatment.—Bromide of sodium, grs. xv, t. i. d.

XIII. Anapeiratic Paralysis—Right arm affected.

October 31st.—Margaret McN., æt. 40. Her father was tremulous in both hands; otherwise family history good. She has been an envelope-maker for twenty years. Her present trouble began about four years ago, but has been worse during the last three years. Envelope-making requires a quick movement of the right arm and hand, and an enormous number of such movements in a day.

Her main symptoms are a feeling of fatigue in the right arm, sudden clonic convulsions of this arm on attempting coördinating movements, and pain in certain muscular groups spasmodically affected.

On being asked to approximate the points of two pens, held to begin with at a distance apart, the right arm begins to jerk violently, increasing as the attempt is forced, until it is evident that she has lost all voluntary control over it; at such times she has a severe pain at the ulnar attachments of flexor fore-arm muscles, and also in the elbow and just

above (attachment of biceps and brachialis); the fingers share in the irregular contractions.

Very slight attempts to use her right arm bring on these contractions; the arm suddenly begins a series of flexions and relaxations at the elbow and at the wrist and fingers, with pain.

On attempting to sew the elbow begins to "draw." She cannot thread a needle without resting the elbow; she cannot write because of these disordered movements, nor can she "pick up things." If she is holding anything heavy she lets it drop; she will be just in the act "of doing everything well with this hand," when she will let everything fall. It is impossible to get a spoon into an egg-glass, or execute other similar every-day acts requiring careful coördinating movements.

Any excitement increases the convulsive movements; before certain people she cannot "steady her mind" at all.

Beyond this excitability there seems to be no mental trouble, nor could a history of other disease be ascertained.

By measurement the right upper arm and the right forearm were slightly larger than the left; nor were the muscles of the hand atrophied, but rather well developed. Tested by æsthesiometer, the arm was hyperæsthetic rather than anæsthetic. She complains of both sensations of cold and of burning spots. The symptoms are then motor, and vaso-motor-sensation is not involved.

Treatment.—Patient lost sight of.

XIV. Unilateral Facial Atrophy.

January 22, 1880.—Pauline C., æt. 13. Was stated to have facial *paralysis*. It was apparent at first glance that the left side of the face was seriously affected, but the diffi-



culty instantly presented itself that both an extensive wasting and a drawing of the mouth sideways and upward existed on the *same* side. Examination showed that there was no paralysis on the right side of the face, and brought out, further, the following points in regard to the left side: The patient first noticed a pricking feeling in the left cheek about four years ago. Beyond this, and at times a slight numbness, she has never had any disturbances of sensation. From this beginning the disease has gradually progressed up to the present time. It cannot be discovered that the left side has ever shown any sign of paralysis.

Present condition.—A very general atrophy of the region corresponding to the distribution of the facial nerve exists, except the district directly around and above the left eye. The skin is of normal color; there are no white spots, but its substance is diminished in bulk, particularly at two spots, *i.e.*, just above and to the left of the angle of the mouth, and just in front of the ear. Beneath these spots, in corresponding muscles, there appears to be almost no muscular tissue; the levator proprius and the buccinator are particularly deficient; the temporal muscle also is much atrophied. Just above the ear, over an area perhaps two inches square, there is no hair, where, on the opposite side, in a corresponding region, the hair is abundant. The bones of this side also have suffered from atrophied changes. The disease does not at any point pass over the mesial line to the right side.

The left side of the tongue is diminished one-half in bulk; the right arch of the palate flat and atrophied; uvula deviated to the right side. Farado-muscular excitability retained.

Some fibres of the buccinator were extracted by Duchenne's trocar and examined microscopically. It was

found that the muscular fibrils were diminished full one-half in diameter; the transverse striæ were, as compared with a fibril from the opposite side of the face, very indistinct and crowded close together, and the perimysium had almost disappeared; no signs whatever of degenerative atrophy existed. The disease seems to be a simple muscular atrophy, where each fibril retains its identity, but is reduced simply in size. It is not an atrophy with degeneration.

Treatment.—Faradism; to be continued for several months.*

* The full account of this case will be found in a paper by Dr. Hammond, in the April number of the *Journal for Nervous and Mental Diseases*.

NEUROLOGICAL CONTRIBUTIONS

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Fructu, non foliis arborem aestima

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ON THALAMIC EPILEPSY.*

By WILLIAM A. HAMMOND, M.D.,

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WHILST cases of the form of epilepsy I am about to describe have doubtless been not very uncommon, it has happened that they have not hitherto received special attention. Either they have been regarded as something entirely different from epilepsy, or the characteristic phenomena have been overlooked or merged into a general description with little stress being laid upon them. So far as I know, therefore, this is the first attempt to differentiate them and to associate the symptoms by which they are chiefly marked with a definite brain-lesion.

In an interesting paper Dr. Hughlings Jackson † specifies the following six varieties of epilepsy, as embracing all known forms of the disease :

1. A sudden and temporary stench in the nose with transient unconsciousness.
2. A sudden and temporary development of blue vision.
3. A spasm of the right side of the face with stoppage of speech.

* Read before the American Neurological Association, June 18, 1880.

† "On the Anatomical, Physiological and Pathological Investigation of Epilepsies," *West Riding Lunatic Asylum Medical Reports*, Vol. iii, 1873, p. 334.

4. A tingling of the index finger and thumb, followed by spasm of the hand and forearm.

5. A convulsion almost instantly universal with immediate loss of consciousness.

6. Certain vertiginous attacks.

As is seen, Dr. Jackson does not make loss of consciousness an essential feature of the epileptic paroxysm, and this fact is apparent from his reiterated assertions, not only throughout the paper in question, but in other contributions which he has made to our knowledge of epilepsy. He defines the disease as "An occasional, sudden, and rapid discharge of gray matter of some part of the brain,"* a bad definition certainly, but I do not quote it now to criticise it further than to call attention to the fact that the element of unconsciousness is not included in its terms.

The more familiar I become with epileptic and epileptiform phenomena, the more convinced I am that there is no true epilepsy without unconsciousness. If we take out this condition, we have a hundred or more trifling symptoms occurring daily in individuals in good health, which never pass into any more highly developed state, any one of which, according to Dr. Hughlings Jackson, constitutes a disease which all mankind regard as of terrible import. The tendency of all epilepsies of mild type is to pass into others of more severe character, and some of the forms mentioned by Dr. Jackson never evince the slightest disposition toward this advance.

Thus, I have repeatedly had patients under my charge, who had at times been the subject of tingling of the index finger, the thumb and other fingers, followed by spasmodic movements of certain muscles of the forearm and arm, and who, not having unconsciousness, I have not considered af-

* Op. cit., p. 315, note, *et seq.*, p. 331.

fects with epilepsy, and in whom cures were effected without there being any more severe epileptoid symptoms. I should be very sorry to regard every patient I have seen, who had occasionally had "a sudden and temporary development of blue vision," as being the victim of epilepsy—for I have seen many such in whom there was no reason to suspect the existence of this terrible malady, and in whom such a symptom was without other apparent significance than as indicating a disordered stomach. When this was remedied, the blue visual paroxysms disappeared without further treatment, often to return when a like cause was brought into action.

In all epilepsies I should regard unconsciousness as the essential phenomenon, without which, in fact, there is no epilepsy. The other symptoms are the characteristic features, those which constitute the differentiations, vertigo, convulsions, sensory disturbances, mania and other psychical manifestations, etc.

The cases which I am about to describe were marked by unconsciousness, but the symptoms were of such a character as to exclude them from any one of the categories mentioned by Dr. Jackson. Yet no one, I think, after a consideration of their phenomena will hesitate to regard them as true epilepsy, however much opinions may differ from mine in regard to their localization.

Before proceeding however to discuss the important questions connected with the physiology and pathology of this form of epilepsy to which I ask attention, it will be well to describe briefly the cases upon which my views are founded.

CASE I. M. I., a young woman about 22 years of age consulted me July 20, 1868, to be treated for what her mother informed me were "visions," which she was in the habit of having

frequently every day. They occurred to her at the most unexpected times and were of great variety, no two, in fact, ever being exactly alike. While sitting in my waiting-room she had had, as she said, one of these attacks, the principal feature of which was the hallucination of a large crane standing on one leg and attentively looking at her. After a few seconds a period of momentary unconsciousness occurred, on emerging from which there was entire recollection of the hallucination in all its particulars.

Inquiry showed that there were no vertigo or spasms of any kind, nor had there during the whole course of the seizure been any convulsive movements, or, in fact, any essential variation from the peculiar type I have mentioned. As soon as the hallucination appeared, and while still conscious, she conversed about its characteristics and was fully aware of its unreality. Suddenly, a loss of consciousness ensued, but there was no fixing of the eyes, no rigidity. Her head, if she were standing or sitting, fell forward on her chest, her breathing remained normal, there was no acceleration of pulse. In a few seconds she as suddenly raised her head, made a few coherent remarks and was entirely herself.

Usually a seizure lasted from twenty to thirty seconds, of which not more than five seconds were passed in unconsciousness. Sometimes they had been as long as a minute, but very rarely.

Such were the principal features as she described them to me. Further questioning of herself and mother led to the conclusions that there was no hereditary tendency, that the first attack had supervened four years previously, after a severe period of study at school, that her general health was good and that thus far there had been no mental deterioration. The attacks were, however, becoming more numerous and of somewhat greater duration. Menstruation had begun at 15 years of age and had always been regular.

I did not at the time regard these seizures as being epileptic in character, but before venturing to give a decided opinion as to their nature, I was anxious to see her while one was present. I accordingly made an appointment for her to come to my consulting-room the next day, after I had finished my morning's work, and to stay long enough for me to observe the active phenomena of an attack. As they came on with greater frequency in the afternoon I was pretty certain to be a witness of their characteristics during the time specified.

The next day, July 21st, in company with her mother she came to my residence. A few minutes after entering the consulting-room and while she was conversing in regard to some points in her clinical history, she exclaimed: "It has come, and oh! mother, what do you think it is? A beautiful chair covered with red velvet all spotted with gold stars. It is just such a chair as I suppose is used for a throne. Well, this is the first time I ever had a chair appear to me. I have had rocks and all sorts of animals, but, but, but—" Here her head sank on her breast, her eyes were closed and her respiration became so quiet that it seemed for the moment to be suspended. There was no extraordinary paleness of the countenance and there had not been the slightest convulsive movement. In about three seconds she raised her head, smiled and looked as if nothing of an untoward character had occurred.

I at once formed the opinion that the paroxysm was a fraud, and I was indiscreet enough to say so in very plain terms. I told her that she had attempted to deceive me and I demanded her reasons for so extraordinary a performance. She and her mother both became indignant—justly so, I suppose—and left the house.

I saw nothing more of the case till November 18, 1878. She then, accompanied as before by her mother, again consulted me. She informed me that the symptoms had continued in an aggravated form; that the "visions" lasted longer; that the period of unconsciousness had been much more severe and prolonged, and that the paroxysms were of more frequent occurrence. Since her last visit to me she had, she said, consulted several practitioners, some of whom thought she was shamming, and others had regarded the attacks as hysterical.

As, during the interval which had elapsed between my interview with her, I had observed a similar case, in regard to which I had formed definite opinions, I determined to study the phenomena with care. I was satisfied, from the case referred to, that my first opinion relative to the present instance was erroneous, and that there was an actual morbid entity with very interesting and characteristic phenomena.

For over a month, therefore, I kept Miss I. under observation, scarcely a day passing that I did not see her. I had the opportunity of witnessing seventeen paroxysms. Sometimes they were preceded by a well-marked aura, and this was always a singular

sensation, apparently somewhere within the cranium, but not capable of being exactly localized or described. This was never felt until within the last two years. It lasted only a second or two, and was immediately followed by the "vision."

The first paroxysm of this series which I witnessed was ushered in by the aura. She had hardly time to say "It's coming," when the hallucination began. She described it as consisting of a large white bear in motion before her on the carpet. It seemed to be walking slowly to and fro, its head bent toward the floor as if scenting something. I closely watched her and could detect no spasm anywhere. She spoke clearly, without hesitation, and with entire distinctness. The pupils were normal.

I had taken out my watch to time the duration of the attack. Thirty-five seconds elapsed, and then her pupils suddenly dilated, her head fell forward, and her left hand, which she was at this instant pointing in the direction of the visional bear, dropped to her side. I pinched the skin of her face, then of each hand, without eliciting any evidence of cutaneous sensibility. I took up a fold of skin on each forearm just above the wrist, and stuck a cataract needle, which was at hand, through it, with a like result. Her pulse—I had not felt it during the existence of the hallucination—was beating at the rate of about sixty per minute, and was full. Her face had not altered in color, nor was there any other change in it except such as was due to relaxation of the muscles—such as is present in sleep. The eyelids were closed, but not spasmodically. She remained in this state exactly twenty-eight seconds, breathing perhaps a little more slowly and deeply than before the accession of the paroxysm. Suddenly she raised her head, looked around inquiringly for a moment, and then, as if becoming aware of a sensation, looked at both her arms where I had pricked them. A drop of blood was oozing from each puncture. She asked what it was, and then, without waiting for an answer, exclaimed, "You have bled me." She was then entirely herself, and talked coherently and without the least excitement about the hallucination.

The only point in which there was any notable difference between this paroxysm and the one I had seen, was the greatly increased duration of the period of unconsciousness, and I was informed by her mother that frequently this was prolonged to two minutes or more.

While making memoranda of the phenomena I had observed, and while she was walking up and down the floor, she said that she was going to have another attack, as she felt the peculiar sensation again in her head. She had no sooner uttered the words when the vision came. "It's a girl this time," she exclaimed, "a girl with long auburn hair and a cap on her head ; she looks like a French nurse. I think I will sit down, for if I do not I shall fall as soon as I become insensible," saying which she quietly sat down in a large arm-chair.

I pinched the skin of her right hand. "Oh!" she exclaimed, "I feel that, I am not insensible yet, I see everything in the room, as well as I do the girl who is not here, I can feel the least touch, and my hearing is as good as ever."

I asked her what "the girl" was doing, "O, nothing," she replied, "she is only standing there in front of the fire-place, looking at me."

I told her to shut her eyes, and then to tell me if she still saw "the girl."

"Yes," she answered, "just as distinctly as I did when they were open."

At forty-one seconds she became unconscious and remained in this state for one minute and five seconds, awaking—I say awaking, for her appearance was like that of a person asleep—suddenly and apparently in a normal condition of mental and physical health.

Several days elapsed before I saw her in another paroxysm. I then determined to ascertain the effects of certain measures directed toward arresting and preventing the attacks.

At the moment, therefore, that she notified me that a vision was coming, I caused her to inhale the vapor of the nitrite of amyl with the result of entirely preventing the further development of the seizure. I also discovered that if the amyl were inhaled during the presence of the hallucination the further progress to unconsciousness was immediately prevented, and the false appearance gradually faded away as the influence of the vapor became more powerful.

A like result was produced by inhalation of ether or chloroform and by firm pressure on the jugular veins. A band drawn tightly around the head was likewise a preventive.

At my suggestion she tried the effect of a strong volitional

effort as an abortive measure and occasionally with success. It was necessary, she ascertained, that her mind should be entirely concentrated upon the subject, and her whole will power directed against the idea of the vision. If there was the least diversion of the attention, the paroxysm went on unchecked, and even under the most favorable circumstances she often failed to stop its course.

For the cure of the disease I prescribed the bromide of sodium, in doses of fifteen grains three times a day, with the effect of at once diminishing the number of the attacks and, at length, after about a month's treatment, causing them to cease altogether. She now left the city, promising to continue the use of the bromide during a period of four or five months of absence. I neither saw nor heard more of her till January 7th of the present year, when she again came to consult me, accompanied by her husband, she having been married in the interval. She informed me that under the use of the bromide of sodium the visions had entirely disappeared; but that after continuing to take the medicine for over a year she had considered herself cured and had stopped it as much on account of the cutaneous eruption it had produced as anything else.

On December 2, 1879, she was married, and on the 15th of the same month, while engaged in household work, had a return of the visions of much more severe character than she had ever had. There had been strong convulsive movements and loss of consciousness as accompaniments. Others similar had followed.

Her husband, who witnessed several of the attacks, stated to me that the unconsciousness, instead of as in the earlier stages of the disease, following the visions, was now contemporaneous with them, if not actually the first in order of sequence; that her face became very red and that she had no knowledge whatever of the nature of the seizure after the attack had passed off. The hallucinatory period lasted about half a minute, and was at once followed by the convulsive stage which persisted for a minute and sometimes more, the spasms being throughout of a clonic character and apparently equal on both sides. While the hallucination was present she acted and spoke as though it were a reality to her.

As yet, there were no indications that during these attacks she would attempt acts of violence against herself or others, but the last vision had been of a very terrifying character, and so far as I

could judge, the paroxysms were now very similar to those of epileptic mania, and certain forms of what is called morbid impulse, with which neurologists are familiar. Epileptic paroxysms preceded by hallucinations, or of which such phenomena constitute a part, are not of very infrequent occurrence.

I at once recommended the use of the bromide of sodium in doses of fifteen grains three times a day, with, in addition, gradually increasing doses of the bromide of zinc, beginning with one grain with each dose of the bromide of sodium. The attacks at once ceased and up to this time the patient has remained in excellent health, without even the symptom of a paroxysm. She still takes the bromide of sodium as in the beginning, and the bromide of zinc in doses of eight grains three times a day.

CASE 2.—Mr. W., a prominent merchant of a neighboring city, consulted me March 1, 1879, for "nervous attacks," as he called them, with which he had been affected for several months. Upon inquiry I found that these "attacks" consisted of hallucinations of sight, smell and hearing, accompanied with numbness or tingling on the right side of the body, and followed immediately by periods of unconsciousness. There was no spasm of any kind and the speech was not in the least degree involved. His wife accompanied him and from her I heard many particulars of his clinical history.

Usually, but not always, the sense of hearing was the first to be deranged; at others that of smell took precedence. In whatever way the paroxysms begin the hallucinations of vision come last. For instance:

The patient would be engaged in his ordinary occupation, or, as was frequently the case, had just risen from bed on awaking in the morning, when, without other warning than a slight sound of tingling in the ears, he would have the hallucination of some one talking to him. For a moment, as was very natural, his intellect was imposed upon, and under the impression that his wife had spoken—the voice was very generally apparently hers or that of some other person who really was or might have been present—he would reply or ask what was said. On being undeceived he at once recognized the falsity of the sensation and knew what was coming. Directly after, he would experience the odor of fresh blood, and then, at once, came the hallucination of vision. About the latter there was no positive uniformity, though the appearances

were always those of old people, either men or women, who seemed to come near to him, increasing in size as they approached, and then, as they reached him, he became unconscious. If standing, he fell, but the warnings were latterly invariably sufficiently prolonged for him to sit or lie down. When he recovered consciousness he had always a clear recollection of all the stages of the attack up to the loss of consciousness. His wife was positive that there were no convulsive movements anywhere, no rigidity, no fixing of the eyes and no confusion of ideas on returning to consciousness. The hallucinations, as well as I could gather, lasted about half a minute, and the periods of unconsciousness, something less than this. The last attack had occurred on the morning before the day of his visit to me.

He was an intelligent man, and I therefore asked him to describe minutely to me all the phenomena of this last seizure. I give his description as nearly as possible in his own words :

"I had risen from bed at about half past seven o'clock, and had just left the bath-tub, when I thought I heard my wife ask me if I had finished my bath ; I was at the moment vigorously rubbing myself with a towel, and being in doubt about the exact words, I called out 'What did you say?' Immediately came the words, 'Drown yourself, drown yourself ; put your head under the water and hold it there.' I looked out of the bath-room door, but nobody was in the room. The last words, however, convinced me that an attack was coming on, for almost always I am commanded by the voices to inflict some injury on myself which is of a character to be suggested by my occupation at the time. Besides, at this instant I felt a kind of thrill pass through my right side.

"Knowing from experience what was at hand, I lay down on the floor, but not before the smell of fresh blood was perceived. It was a strong, overpowering, sickly smell, being accompanied with a slight sensation of nausea. It only lasted a few seconds, but before it was gone the vision came. I was lying flat on my back, looking up at the ceiling, when suddenly it appeared as though a large basket were descending toward me. It seemed to contain a little old black man, who leaned over the edge and grinned at me. When he got to within a foot of my face the basket began to ascend and another one, similar and with the same sort of old man in it, descended as did the first. It seemed then as though an endless chain were in motion, at regular intervals

on which these baskets with little old black men in them were fixed.

"The movements seemed to continue for an hour or more, and then I lost consciousness. As a matter of fact, the whole seizure, from the beginning to the end, was only about a minute and a half. My wife came in just at the instant I became unconscious, and she is certain this condition did not last over half a minute.

"On regaining my senses I jumped up, took the towel and continued my rubbing as though nothing had happened. I felt as well as I ever had in my life; without, in fact, a single unpleasant feeling in any part of my body."

His wife stated that, hearing him call to her, she came from another room to him, and reached him just as he became unconscious. He lay on the floor perfectly still, without the slightest spasmodic movement anywhere, and when he regained consciousness was perfectly himself, mentally and physically.

I treated this gentleman with the bromide of sodium in doses of fifteen grains three times a day, with the effect of stopping the seizures on the third day. Since that time till now (June 2d) he has had no paroxysm of any kind. He still continues to take the medicine.

Three other cases, similar in general features, but of which I have no full notes, have come under my observation.

That these are instances of epilepsy will not, I think, be questioned; that they possess peculiar features will be readily admitted. The nearest hitherto described form of epilepsy to this, consists of those paroxysms in which the patient has an hallucination usually of sight and then immediately passes into an ordinary seizure. Many such cases have been reported, and quite a large number have occurred in my experience. I will return to the consideration of these directly.

The main point which it is desired to bring forward in the present communication, relates to the seat of the intracranial disturbance. The title of "Thalamic Epilepsy" which I have given to this paper, sufficiently indicates my

view of the matter. My reasons for the opinion held are briefly as follows—and are based as well upon physiology as upon such experiments as disease has made for us :

The thalami optici if centrally divided antero-posteriorly, will be seen to have imbedded in their substance four ganglionic masses. Of these, three are ranged along the superior surface of each thalamus and from their position may be designated the *anterior*, *middle*, and *posterior*, while the other, more deeply placed, may be called the *central*.

Luy^s* who has studied the formation of the thalami optici with great thoroughness, designates these nuclei, from alleged anatomical and physiological relations, respectively, the *olfactive*, the *optic*, the *acoustic*, and the *sensitive* or ganglion of general sensibility.

It is true that Meynert† only half acknowledges their existence, contending that the appearance of distinct nuclei is due to the mode of distribution of the fasciculi of fibres which enter and leave the thalamus, and that Huguenin‡ adopts this view of the subject. Really, however, the matter is of no great importance so far as its bearing on the subject matter of this paper is concerned. That the optic thalami, either by distinct nuclei or by themselves as bodies of ganglionic cells, are distinctly connected with the organs of the special senses referred to, as their nervous centres, is, I think, a matter capable of complete demonstration.

The relations of the optic thalami to sensibility were first pointed out by Magendie,§ who ascertained that their irritation in animals produced excessive pain, while the other

* Recherches sur le système nerveux, etc., Paris, 1865, p. 198, *et seq.*

† Article on "The Brain of Mammals," in Striker's *Manual of Histology*, American Edition, p. 690.

‡ Anatomie des centres nerveux. French translation of Keller, Paris, 1879, p. 104.

§ Leçons sur le système nerveux, Tome i. p. 103, *et seq.*

parts of the brain might be wounded without causing evidences of suffering.

They have also been regarded as specially the centres for vision, as presiding over the movements of the upper extremities, and again, as influencing voluntary movements in both the thoracic and pelvic limbs.

Although Todd, Carpenter and others have considered the optic thalami as centres for sensorial impression, Luys,* more than any other physiologist, has elaborated this idea and has adduced arguments in its support which it is difficult to overlook. His doctrine is that the optic thalami are reservoirs for all sensorial impressions coming from the periphery of the nervous system, that like other ganglionic masses they elaborate these impressions, and that by means of the fibres of the corona radiata they transmit them to the cortex to be still further perfectionated by being converted into ideas. In his own language :

“ All sensorial impressions after having been received and concentrated in the gray substance of the optic thalami are irradiated toward the different regions of the cortical periphery. The white central fibres transmit them, and the gray substance of the convolutions receives and elaborates them.” †

Many facts in morbid anatomy go to support this view of the relation between the several sensorial organs and the optic thalami. Twenty-six cases have been collected by Ritti,‡ from Hunter, Treviranus, Serres, Lancereaux, Cruveilhier, Andral, Marcé, Lallemand, Laborde, Luys, Voisin and others, to the effect of sensorial disturbances existing during life, in connection with disease involving the optic thalami, as discovered after death.

* Op. cit., p. 344, *et seq.*

† Op. cit., p. 346.

‡ Théorie physiologique de l'hallucination, Paris, 1874, p. 37.

But it is not alone to morbid anatomy that we are to look for evidence of this relation. Experimental physiology equally tends to its establishment, and though the position of the optic thalami is such as to make it a matter of difficulty to act upon them as in case of the cortex, the obstacle has in a great measure been overcome by Fournié,* and we are thus placed in possession of data which have a distinct connection with the point at issue.

Fournié's method consisted in injecting, by means of a hypodermic syringe, caustic solutions—such as a strong solution of the chloride of zinc—into the brain of a dog, observing the resulting phenomena, and then after death, carefully noting the part of the organ in which the injection had been deposited.

Seven of his experiments related to the optic thalami, and without referring to the other results, it may be stated that in every one there was a more or less complete loss of sensation.

Thus in case XV the left side was operated upon. The needle traversed the cornu ammonis, and the injection was thrown out in the centre of the optic thalamus. As a consequence, there was complete abolition of all sensibility.

Such being apparently the physiological relations of the optic thalami, we come, in the next place, to discuss with something more of fullness the consequences, so far as sensation is concerned, of certain abnormal states of these organs. As I have said, Ritti has collected from various sources, many cases proving that injury or disease of the optic thalami leads to sensorial derangement, or the entire loss of one or more of the special senses. He has also gathered together from the works of Calmeil, Lagardelle and others, instances tending to establish the fact that hal-

* Sur le fonctionnement du cerveau, Paris, 1873.

lucinations are the result of disease of one or both optic thalami. Several of the cases were supplied to him by M. Voisin, and had not previously been published. Of these latter I quote the following :

L. A., woman aged 41, entered the Salpêtrière, January 30, 1867. Since 1865 she had been subject to hallucinations of sight accompanied at times by some excitement and partial alienation. At her admission, she had hallucinations of sight and hearing, and others connected with the genital organs. There were also delusions of persecution. Latterly the sense of hearing has been impaired. She died April 17, 1869, of typhoid fever.

Autopsy.—Neither thickening nor adhesions of the membranes ; no sub-arachnoid effusion ; cranial nerves normal, with the exception of the eighth pair, which were rotten at the most posterior and internal part of the two lobes of the cerebellum, and in the region nearest to the olivary bodies there were collections of little granulations such as are seen in the choroid plexus. These were continued as far as the floor of the fourth ventricle, where they covered its cerebellar wall. Nothing was found wrong with the left optic thalamus, but the gray anterior centre of the right thalamus was more than normally vascular, and in the part immediately subjacent to the olfactive centre of gray matter there was a spot, the color of the dregs of wine, due to a globiform extravasation of blood. In the middle region there was a lacuna. Each of these was over a millimetre and a half in diameter.

This case is instructive, not only on account of the situation of the lesion, but for the reason also that there was no other intra-cranial disease to which the symptoms could have been ascribed.

In a case that came under my own observation, a patient had hallucinations of sight and hearing, while at the same time he was both blind and deaf. This instance is, of course, not cited for the purpose of showing that hallucinations are not the result of disease or disturbance of the sensorial organ in anatomical connection with the sensorial aberration, a view held by the elder Darwin, Foville and others, but for calling attention to the important

fact that *post-mortem* examination showed the existence of a clot, the size of a small bean, in each optic thalamus, while there was no other evidence of intra-cranial disease to which the symptoms could have been attributed, except atrophy of both optic and auditory nerves. In this case the blindness and deafness had been present for several years, but there were no hallucinations or other abnormal mental disturbance till, in the month of October, 1877, on successive days, the 12th and 13th, there were paralytic seizures without coma, on each occasion soon after waking in the morning. The motor paralysis was slight, and almost entirely disappeared in a few days, but the cutaneous anæsthesia was persistent to the day of his death—on December 10th following. I saw him first on October 15th, and again on the 18th in consultation with Dr. Nealis. The examination of the brain was made by me on December 11th, the day after death, which had occurred in the night. A second extravasation had taken place into the pons varolii, and had broken through the tissue into the sub-arachnoid space. This was evidently the immediate cause of death. The other lesions were as I have stated, and to them the blindness and hallucinations were evidently due.

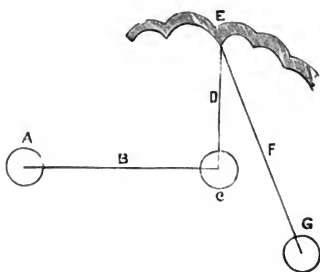
That the optic thalamus is the centre for perception as the cortex is for intellection is, to say the least, exceedingly probable. Every sense has these two stages in its full action. Something is *perceived*, that is one stage; it is more or less thoroughly *understood*, and that is the other stage. A pigeon, for instance, from which the cerebrum has been removed, leaving only the basal ganglia, perceives but does not understand. A light may be held before the eyes, and the head is turned if the light be moved so that it can still be seen. If a loud noise be made near by, the animal starts or turns its head in the direction of the sound. These phenomena show *perception*, but they just as clearly show the absence of *intellection*, for the animal does not do the thing which, if it understood, it would do; it obtains no idea from the sensorial impression, and it is equally incapable of originating an idea, for it is devoid of conscious-

ness. Consequently it gives no evidences of alarm, no matter how intense the visual or auditory excitation may be. *It perceives*, as is very evident from its actions, but these actions are such as to show that there is no further elaboration of the impression. It stops at the sensory ganglion because the intellectual ganglion has been removed.

The intrinsic starting-point of every real sensorial impression is an organ of sense, such as the eye, the ear, or the terminal ramifications of the olfactory nerves. The starting-point of an erroneous or false sensorial impression—illusion or hallucination—may be either the organ of sense concerned therein or the sensory ganglion—the optic thalamus. The cortex or intellectual centre for any sense cannot form a real or false sensorial impression. It can only elaborate the impressions which reach it from the sensory ganglion, and these are either true or false, real or unreal, according as they come originally from the ganglion, or are transmitted through it, from an organ of sense receiving real impressions from without; and according as the cortex is in a normal or an abnormal condition, will the ideas or beliefs which it forms from these transmitted impressions be normal or abnormal. It is true the cortex can recall former impressions and construct ideas from them, but here the idea is based on the recollection and not on a sensorial impression. Till, for instance, the eye and the optic thalamus had received the image of an American Indian and perceived it, the cortex could not have formed an idea of the appearance of such a being. All, therefore, that the cortex does, is to take cognizance of present or former sensorial impressions, which it receives or has received from the optic thalamus, and to form ideas from them. It does this normally when we bring the memory into action in a reasonable and logical manner; it does it

abnormally, for instance, in delirium without hallucinations, but in which there is a constant recurrence, in a disorderly manner, of ideas previously formed from former sensorial impressions.

The accompanying diagram will tend to the elucidation of the views here expressed.



A is an organ of sense, the eye. Through the optic nerve *B* an impression received on the retina is transmitted to the sensory ganglion, the optic thalamus *C*, where it becomes a perception. From the optic thalamus it is transmitted by fibres of the corona radiata *D* to the cortex *E* where it is elaborated into an idea, and from the cortex another form of force may be evolved and an intelligent action may take place in consequence of the transmission through another set of fibres *F* of a motor impulse to a muscle *G*. If there is no organ of sense there can be no normal sensorial impression; if the optic nerve be divided the sensation cannot be transmitted to the optic thalamus; if there be a diseased optic thalamus the sensorial impression will be perverted and there will be an illusion; if the cortex be in a normal condition this illusion will be corrected and un-

derstood as such erroneous perception ; if, however, the cortex be diseased, the illusion will be accepted as true and a false idea or a delusion will be found. If the organ of sense receives no impression, but if such impression be formed in the optic thalamus, then we have an hallucination ; if, again, the cortex be healthy, this hallucination is appreciated at its real value and there is a true idea in regard to it ; if, on the other hand, the cortex be in an abnormal state, the hallucination is accepted for reality and a delusion is the result.

In the cases which form the basis of this paper there were hallucinations without intellectual derangement. They differed, therefore, from those cases of epilepsy in which there are hallucinations, and in which these hallucinations are received as realities, and acts, perhaps of violence, committed in logical sequence with the delusions formed. These doubtless have their starting-point in the optic thalamus, as shown by the existence of hallucinations, but the morbid process soon passes to the cortex, and the resultant phenomena are loss of consciousness and intense intellectual and motor disturbance.

I feel warranted, therefore, in concluding that there was in each of my cases no lesion of any of the intellectual sensorial centres situated in the cortex, but that the disease was confined entirely, or nearly so, to the optic thalami. I say nearly so, because the loss of consciousness which ensued showed that there was that necessary cortical disturbance without which there can be, in my opinion, no true epilepsy. Hallucinations without loss of consciousness no more constitute epilepsy than twitching of the hand or a stench in the nostrils, similarly unaccompanied, is epilepsy. Either may become epilepsy by further extension of the

morbid intracranial action, but either may exist indefinitely without such extension occurring.

Again, an additional argument against the involvement of the cortex is found in the fact that there were no muscular spasms in either case. Muscular spasms are, of course, not epilepsy, but muscular spasms accompanied by unconsciousness make a true epileptic paroxysm. In these cases the motor disturbance was substituted by sensorial disturbance, and consequently there was sensorial epilepsy, or, as I prefer to call it, from the probable seat of the lesion, thalamic epilepsy.

I have not in this paper discussed the question of the situation in the cortex of the various intellectual sensorial centres. Properly, it has no connection with the subject, and again, there is great doubt as to whether a single one of them can in the present state of our knowledge be definitely located.

And it is scarcely necessary for me to add, that the views here expressed relative to the location of the lesion in cases of sensorial epilepsy, are entirely opposed to those of Hughlings Jackson and Ferrier, who regard such cases as of cortical origin. These eminent authorities disregard altogether the researches of the French physiologists and pathologists, and do not make the distinction between perceptual sensation and intellectual sensation which I have contended for in this memoir, and which I think is logically and psychologically proven to exist. Thus, Ferrier in citing a case from Bell, says : *

"I mention this case chiefly because it harmonizes with the observations of Hughlings Jackson, already referred to, in respect to the frequent association of optical illusions, colored vision, etc., with disease of the posterior lobes. These

* "The Localization of Cerebral Disease," p. 131.

spectra are the counterpart of the motor discharges caused by irritative lesions of the motor centres. That they should occur more particularly with lesions situated toward the posterior aspect of the hemispheres is quite in accordance with the localization of the visual centre in the angular gyrus. These sensory discharges in connection with epilepsy of cortical origin, whether in the domain of sight, hearing, smell, taste or tactile sensation, are without doubt to be looked upon as indications of irritative lesion of the sensory centres, though we have not yet sufficient material to enable us from a purely clinical point of view to connect any peculiar form of sensory discharge with a specially localizable lesion, unless we regard it as established in respect to optical illusions."

Now, Dr. Ferrier* has himself cited a case which is entirely in opposition to his views of cortical localization in sensorial epilepsy, and just as strongly in favor of those set forth in the present paper. It is so apposite that I trust to be excused in giving a tolerably full abstract of the details:

The patient, a soldier, was admitted for epileptic insanity. "States that he saw dogs and cats about him; continually trying to tear the bedclothes or to seize hold of his own throat; every five or ten minutes he has epileptiform seizures, during which he grows very violent, requiring restraint.

"Tries to seize the poker or anything else that he may strike those in attendance on him. Endeavored to jump out of the chamber window. He has previously been in the asylum.

"As far as can be ascertained he labors under no delusion, but is decidedly demented. For certain events, such as his former residence here, his memory appears good enough, but for more recent events he possesses not the slightest knowledge.

"But the most peculiar feature in the case is the partial epileptic seizures which occur every five or ten minutes without any

* "Pathological Illustrations of Brain Functions," in West Riding Lunatic Asylum Medical Reports, vol. iv, p. 31.

loss of consciousness. The patient is suddenly seized with a convulsion in the left arm, the head is turned to the left as well as the eyes, and occasionally the muscular movements spread to the legs and right arm, but in a very slight degree. Indeed, after each seizure the patient's respiration is heavy, but there is not the least degree of unconsciousness, though he appears inclined to drop off to sleep. The patient is unable to stand, muscular power being entirely lost in left leg and decidedly diminished in left arm."

The patient went on from bad to worse; had long periods of drowsiness and stupor; during one night had ninety fits; spoke of visions of dogs, etc., being in his room all day, and on January 17th died.

Now here was a case of epileptiform convulsions attended with paralysis and hallucinations. It was one in which, according to Drs. Jackson's and Ferrier's views, there ought to have been well-defined cortical lesions; it was one in which, according to the views expressed in this paper, there ought to have been lesions of one or both optic thalami. Taking into consideration the facts that the hallucinations in this case were conjoined with left motor spasms and paralysis, I would not have hesitated to diagnosticate the existence of lesion of the right optic thalamus. Now, as a matter of fact, let us see what was revealed by the *post-mortem* examination, which, as Dr. Ferrier tells us, was made with the utmost care and thoroughness.

"*Head.*—The skull is of average thickness and density and is fairly symmetrical. The dura mater is somewhat adherent and the sinuses contain only fluid blood. There is little or no thickening of the arachnoid, but there is a good deal of superficial wasting of the convolutions of the frontal and parietal lobes. The vessels at the base are perfectly normal. There is no visible hyperæmia and pia mater strips with great ease. The gray matter is somewhat pale; it as well as the white matter is of fair consistence. There is no trace of softening, clot, induration or other organic change anywhere visible, although the most careful search

is made. The ventricles are of average size and contain only a small quantity of fluid. *The optic thalamus on the right side is smaller than its fellow on the left and its posterior end is attenuated.** The whole brain weighs 47 oz.; right hemisphere, 20 $\frac{3}{4}$ oz.; left hemisphere, 20 $\frac{1}{2}$ oz.; cerebellum, 5 $\frac{3}{4}$ oz.; pons varolii, 4 drachms, 24 grains; medulla oblongata, 2 drachms. The medullary substance of the brain is perhaps a little firmer than it ought to be. No pathological change can be detected in the cerebellum, pons or medulla."

Certainly no more striking case in support of the doctrines set forth in this paper could well have been supplied even if it had been made to order.

It is true that Ferrier † regards the optic thalami both from his own experiments and those of others, as being intimately connected with all sensorial functions, but they are so in his opinion merely because they are "ganglia of interruption," or centres of convergence for the sensory tracts on their way to the cortex, and not the nerve-centres or generators of nerve force. If this view were correct, it is difficult to see what special use they can have, for the sensory tracts would certainly get to the periphery just as well without as with them, and what is more, nature would have to bear the odium of having allowed the construction of two entirely superfluous masses of ganglionic tissue.

I have as yet said nothing of Nothnagel's experiments relative to the functions of the optic thalamus. The results obtained by this brilliant experimental physiologist are so exceptional in character as to be quite inconsistent with those of all other observers, for they indicate no especial function as belonging to the organ in question. This fact is perhaps explained by a consideration of the method employed.

* Italics are mine.

† "The Functions of the Brain," New York, 1880, p. 259, *et seq.*

In his recent work Nothnagel * considers the question at considerable length. Among his conclusions, the following sufficiently express his views so far as the scope of the present inquiry extends :

1. "In regard to the majority of the symptoms which have been ascribed to lesions of the optic thalamus, it is very doubtful whether they directly or only indirectly through involvement of neighboring parts have such origin ; and other symptoms properly associated with thalamic lesions are of doubtful import as they also occur from injury or disease of other organs.

2. "From which it follows that a certain diagnosis of lesions restricted to the thalamus is at present generally impossible, for only under a specially favorable combination of circumstances is it possible to make such diagnosis with any degree of surety."

And if I were specially discussing the functions of the optic thalami in all their relations, I should not overlook the valuable contributions of Dr. Crichton-Brown † to our knowledge of the subject.

In conclusion, I think the following deductions may fairly be drawn, at least for the present :

1. That there is a form of epilepsy, the phenomena of which are simply hallucinations and loss of consciousness.

2. That the morbid anatomical basis of this type is seated in the optic thalamus.

* *Topische Diagnostik der Gehirnkrankheiten*, Berlin, 1879, p. 222.

† "The Functions of the Thalami Optici," *West Riding Lunatic Asylum Medical Reports*, vol. v, 1875, p. 227.

NEURALGIA OF THE TESTIS.*

By WILLIAM A. HAMMOND, M.D.

FORTUNATELY neuralgia of the testis is not a very common affection. It derives its importance, therefore, mainly from the suffering it produces, and the obstinacy with which it ordinarily resists treatment.

Writers upon diseases of the testicle, while laying great stress on the terrible agony which those affected with the morbid condition in question are compelled to undergo, and lamenting the almost hopeless prospect of relief, pass the subject over with but few other remarks. Thus Curling† gives only four pages to its consideration, Mr. Humphrey‡ dismisses the matter in a dozen or so lines of his excellent monograph, and Erb§ does not even mention it.

Anstie|| declares that he has never seen neuralgia of the testis as an independent affection, except from one of these causes: As a reflex effect of severe *herpes preputialis*, as a symptom of calculus descending the ureter, and as a consequence of excessive masturbation. Though probably they are among the most common causes, syphilitic infec-

* Read before the New York Neurological Society, May 4, 1880.

† "A Practical Treatise on the Diseases of the Testis," etc. American edition. Philadelphia, 1856, p. 303.

‡ Article on "Diseases of the Male Organs of Generation," in Holmes' System of Surgery.

§ Krankheiten des Nervensystems. Ziemssen's Handbuch Zwölfte Band.

| "Neuralgia and the Diseases that resemble it." New York, 1872, p. 78.

tion is, according to my experience, much more so than either of those named by Dr. Anstie.

The question very naturally arises: What is neuralgia of the testis? Many authors fail to see any difference between it and the "irritable testis" of Sir Astley Cooper. But, that the distinction between the two is very clear, appears to me to be a matter of no doubt, and has been strongly insisted upon by Curling. In fact, careful observation and consideration of the symptoms of the two affections, show that they have very few points in common. In the one there is a permanent condition of hyperæsthesia; the slightest touch produces agony, and even the contact of the clothes is insupportable. In one case which came under my observation, the patient could not endure the dropping of ice-cold water, which fell on the scrotum, from a height of only two or three inches; and in another a current of air blowing upon the parts, through an open window, on a summer's day, as the patient lay on the bed, was unendurable.

That there are remissions in the intensity of the morbid sensibility, is very true, but so long as the disease lasts, there is more or less hyperæsthesia, and never a distinct intermission.

In neuralgia of the testis, however, the paroxysms are distinctly marked, and in the intervals there is entire freedom from pain. Even when they are at their height, though a light touch may excite an increase of pain, steady and even forcible pressure, so far from aggravating the suffering, actually mitigates it, and may even, as I shall presently show, abolish it altogether. In "irritable testis," there is no pain so long as the part is kept entirely free from exciting causes. The testis, as it were, possesses a morbid capacity for experiencing pain. In neuralgia of

the testis, on the contrary, the pain, though capable of being aggravated by various circumstances, is, nevertheless, to a great extent, independent of them. Finally, "irritable testis" is rarely of long duration, either ceasing spontaneously, or yielding, sooner or later, to treatment; whereas neuralgia of the testis is ordinarily among the most obstinate of affections, even castration rarely being productive of relief.

Again, some authors regard the disorder under consideration, as being simply a lumbo-abdominal neuralgia, and still others, as being a disease of the sympathetic nerve. Thus Cohen* embraces it among his vaso-motor neuroses, in which he is followed by Fontarce,† who, however, seems to be unaware of the existence of any other affection of the testes, chiefly characterized by pain, than Sir Astley Cooper's "irritable testis."

On the other hand, Eulenberg and Guttman,‡ though also confounding the two affections, and considering them under the head of "Hyperæsthesia of the Spermatic Plexus," declare that "authors, in describing such obscure groups of symptoms, have adduced nothing that would warrant us in localizing the seat of these affections in any sharply-defined part of the sympathetic system, and physiology and pathological anatomy certainly furnish us with no adequate grounds for so doing."

The present paper, however, is not devoted to the consideration of any such questions. It is purely of a clinical character, and has reference to two cases of neuralgia of the testis, which have quite recently been under my care, and which were successfully treated by means not hitherto,

* "Des Névroses Vaso-motrices" *Arch. Gén. de Méd.*, 411, 1863.

† *Pathologie clinique du grand sympathique*. Paris, 1850, p. 78.

‡ *Physiology and Pathology of the Sympathetic System of Nerves*. Translation by Napier, London, 1879, p. 129.

so far as I am aware, employed in the affection. Other cases of the disease had been under my charge, but except in those of a syphilitic character, no great degree of success had followed the therapeutic measures adopted. I had succeeded, as had others, in relieving the pain by hypodermic injections of morphia, but the influence was only temporary. I have never performed castration for the disease, and I am decidedly of the opinion,—bearing in mind the experience of those who have performed it,—that the operation is entirely unjustifiable, unless the neuralgia is clearly associated with, or results from some morbid condition of, the testicle, and even then the measure I have to propose should be first fairly tried.

Thus Curling* states that Sir William Blizard extirpated a testicle, on account of neuralgia, which, upon examination, was found to be perfectly healthy. The same author cites a case occurring in the practice of Mr. Russell, of Edinburgh, in which castration was followed by cure; but in another instance of like character, the patient lost his testicle, but continued to suffer from the disease as badly as before the operation. Sir Astley Cooper, extirpated the testicle three times for the disease in question, and with satisfactory results, but in all of these, as Curling points out, the organ was manifestly the seat of disease.

Macculloch† refers to a case of neuralgia of the testis which, having lasted a long time, and entailing great suffering, castration was decided upon. The operation was performed, and without the least beneficial effect, for the cord became the seat of the pain, and the agony was as great as ever before.

I know of no surgeon of the present day who advocates

* Op. cit., p. 304.

† Essay on "Marsh Fever and Neuralgia," London, 1828, p. 77.

the practice in question ; and, certainly, if the results I am about to detail are not altogether exceptional, no excuse for castration in neuralgia of the testis exists. The procedure which I have to recommend, is based only on two cases, but the relief afforded in each of these was so prompt and decided, that I ventured to bring it before the medical profession, that other trials may be made. Several years may elapse before another case of the disease comes under my observation. Till these two instances of the affection, I had not witnessed one for over three years.

Case I.—I. H. B., a gentleman aged 47, consulted me March 15th, for neuralgia of the right testis, from which he had suffered more or less severely, and with but few and short intermissions, for over fifteen months. He admitted that the affection was originally, in all probability, induced by excessive venereal indulgence, but insisted that since the inception of the disease, he had been extremely temperate in this direction. Indeed, the facts that the pain was always aggravated, and paroxysms generally induced by intercourse, operated as an effectual prohibition against extreme, or even moderate gratification of the sexual appetite. There was no evidence of syphilis.

The pain was of a sharp, lancinating character, not confined to the testicle, but extending up the cord as high as the external abdominal ring. The cremaster muscle was, during the continuance of the paroxysms, the subject of strong spasms, which added greatly to the agony of the patient. Walking increased the pain, and sometimes brought on a seizure, but firm pressure afforded some relief, so that when he had the opportunity, he sat with his hand firmly squeezing the right side of the scrotum.

As, previous to his consulting me, every medicine theoretically capable of giving relief had been tried ; as he had

been electrified, galvanized, faradized and magnetized, without benefit; as he had been subjected to anti-malarial, anti-syphilitic, anti-rheumatic and anti-gouty treatment in vain; as local applications of hot water had been prescribed by one surgeon, powdered ice by another, the actual cautery by a third, cutting for a supposed stricture by a fourth; as he had been blistered, "unguented," iodinated, etc., etc., and all to no effect,—nothing giving any relief except morphia, hypodermically administered, and as the effect of this had been but temporary, I felt warranted in expressing an unfavorable prognosis. I think most of my professional brethren would have been, as I was, almost hopeless of effecting a cure.

It struck me, however, one day, as I was applying pressure to the facial nerve of a patient for the purpose of stopping histrionic spasms, that possibly the neuralgia of Mr. B— might be arrested by like means applied to the spermatic cord so as to compress the nerves. I reflected further, that in those cases of motor paralysis caused by pressure, such as in those instances in which the axillary plexus is compressed during sleep by the patient's arm falling over the back of the chair, there is always more or less anæsthesia produced; and, still further, that the stretching of a nerve for neuralgia, an operation I had several times performed with success in cases of sciatica, caused physical effects upon the tissues of the nerves strictly analogous to those induced by pressure. I also called to mind Breschet's operation for the radical cure of varicocele in which the cord is subjected to strong pressure for the purpose of obliterating the spermatic veins.

Not having at hand Breschet's apparatus, I took one of the little wooden test-tube holders which are sold by the chemical-apparatus dealers for a few cents, and by slightly

modifying it so as to give a little more room between the blades, and placing another India rubber band around it, so as to increase the pressure about double, I had a piece of mechanism well adapted for the purpose I had in view.

On the 16th of March, while the patient was suffering from a severe paroxysm, I smoothed out the folds of the scrotum and applied the instrument so as to compress the cord as high up as possible.

So far from its adding to the pain he was suffering, the immediate effect was a decided mitigation. In the course of about two minutes, a different kind of pain began to be experienced at the point where the apparatus was applied. This now extended upward into the abdomen, and downward into the testicle. It increased in violence till, finally, at about ten minutes after the application, the patient exclaimed, that "the remedy was worse than the disease," and that nothing would induce him to endure it longer. Believing that the pressure exerted was not sufficient for the object in view, I added to it by squeezing the blades together with my fingers. At once the pain stopped. The patient felt nothing but a tingling sensation apparently throughout the right side of the scrotum, and this rapidly diminished. Pricking the skin of that side failed to cause any pain, and the touch of the finger was not felt; ten minutes had now elapsed; I ceased to press with the hand, but continued the application of the instrument for five minutes longer; there was no return of the neuralgic or other pain. I directed the patient to remain in bed till I should see him again, six hours afterward; at that time (8 p. m.) there had been no return, and up to the present date (April 25th) he has remained entirely free from all pain, the longest period of complete absence from neuralgia which he has experienced since the beginning of the disease. Sen-

sation has returned to the scrotum and testicle, and there are normal erections and sexual desire.

Case II.—I. T., age 38, consulted me March 17th, for neuralgia of the testis, from which he had suffered since December 26, 1879, with but two distinct intermissions, though there were occasional periods during which the pain was less than at others. At the time he came under my observation his suffering was particularly acute. In this case, according to his statements, there were no reasons for suspecting excessive sexual indulgence or a syphilitic infection as the cause. Apparently it was due to exposure to cold winds while rather lightly clad on Christmas night. He had been awakened the next morning by the first paroxysm.

On examination, I found that the right testis was, as in the other case, the seat of the disease, and that the pain extended up the cord and into the abdomen. Walking, sitting or standing, aggravated the suffering, and only by lying down on his back did he obtain any marked alleviation. He had found out for himself, however, that a suspensory bandage gave some relief from the intense pain produced when he walked, or even stood erect, but beyond this, no means of treatment, except the use of opiates, had been of the slightest benefit. One eminent surgeon of this city had suggested castration, but others had strongly advised against it. When the patient came to me he had already consulted over a dozen medical gentlemen besides several charlatans. He informed me that one of the latter had temporarily relieved the pain by suppositories of opium and belladonna, but in a short time these entirely failed to give any amelioration. He was particularly anxious to get my opinion in regard to the advisability of castration, for, being almost in despair, he had nearly come to the determination to have the operation immediately performed.

As I have said, so far as the patient's antecedents were concerned, careful inquiry led to no suspicion of specific disease, neither were there any evidences of such a condition. I could not ascertain that any marked neurosis had existed in any member of his family. He had been married for about five years and had two healthy children. Since the inception of the malady, venereal desires had almost entirely ceased, and erections, such as those caused at night by lying on the back, or by distention of the bladder, added greatly to his suffering.

On the afternoon of the 17th of March, I applied pressure to the cord by means of an apparatus similar to a lemon-squeezer, but so arranged that the blades could be brought closer together or separated by means of a screw passing through them. In this way the pressure could be more exactly adjusted than by the elastic bands used in the previous case, and could, moreover, be rendered much greater, as occasion might require.

Profiting by the experience derived from the first case, I compressed the cord strongly at first. There was some little local pain, chiefly, so far as I could judge, in the skin of the scrotum, but the pain in the testicle was almost immediately arrested. After five minutes had elapsed, I separated the blades so as to allow the circulation to be resumed, but in five minutes tightened them again; I now adjusted them after another five minutes of strong pressure, so as to permit the circulation to go on, but yet exert considerable force upon the nerves, and while thus arranged, the patient fell asleep,—the first undisturbed nap, as he explained to me, that he had since the beginning of the disease.

When I saw him in the evening, four hours after the application, he had just waked up; I removed the instrument, and since then to this date (April 25th) there has been no pain.

For several days afterward, the testicle seemed to be numb, but this insensibility is evidently gradually disappearing.

Relative to the effects of pressure upon nerves, a good deal of valuable information might be brought forward from the writings of Waller, Bastian and Vulpian, Mitchel and others. At some future time I propose to adduce some of my own experiments and observations relative to the influence of pressure as a curative agent for other neuralgias. I believe it has been applied to branches of the fifth pair in neuralgia of the face, but I am unacquainted with any definite reports as to its value. It is mentioned by Erb in "Ziemssen's Handbook" very casually, but Anstie and other authors do not refer to it.

To be effectual in relieving the pain of a neuralgic testis, the pressure must be strong enough to break up the axis cylinders of the nerves. If less than this, the pain will be aggravated; doubtless in time the nerve is restored to a state of integrity. How long a period is required for this purpose cannot yet be determined from the two cases occurring in my experience.

Another point remains to be considered, and that is, does the operation lead to atrophy of the testicle?

In reality this is not a question of the very first importance so far as the interests of the patient are concerned, for one good testicle will serve him better without its neuralgic fellow, than with it. But the question is important in other relations, and there may be cases in which both testicles are neuralgic, and then it becomes a primary consideration.

I suppose that if the spermatic nerve were irreparably injured by the pressure, atrophy would ensue. The experiments of Obolensky* on rabbits go to show, that if the

* *Zeitschrift für rationn. Med.* B. 32, Heft. 2, 1868, cited by Vulpian in *Leçons sur l'appareil vaso-moteur*, t. ii, 1875, p. 392.

spermatic nerve be divided, the corresponding testicle progressively wastes away, and in a case of fatty degeneration of this nerve occurring in a man, the testicle of the same side was atrophied, and there was also a nucleus of softening in the gray substance of the cord. It is probable, however, that this "nucleus" was at once the starting point of the degenerative processes both in the nerve and testicle.

ON MYXŒDEMA, WITH SPECIAL REFERENCE
TO ITS CEREBRAL AND NERVOUS SYMPTOMS.*

By WILLIAM A. HAMMOND, M.D.

THE first account of the very remarkable disease which I am about to bring to the notice of the American Neurological Association, was given by Sir William Gull,† in a paper read before the Clinical Society of London Oct. 24, 1873, entitled "On a Cretenoid State Sepervening in Adult Life in Women." Sir William Gull did not attempt any very complete description of the cases that had come under his observation, nor enter at any length into a consideration of the morbid anatomy and pathology of the disease. His main object appeared to be to draw attention to a well-marked and probably not uncommon affection which, up to that time, had not been differentiated.

Subsequently, Dr. Ord,‡ in a very thorough paper entitled, "On Myxœdema, a Term Proposed to be Applied to an Essential Condition in the Cretenoid Affection Occasionally Observed in Middle-Aged Women," made an exposition of the symptoms and morbid anatomy of the disease which leaves little to be desired.

Before the Clinical Society, Oct. 10, 1879, Dr. Dyce Duckworth§ reported cases of the disease, and Dr. Ord

* Read before the American Neurological Association, June 16, 1880.

† Transactions of the Clinical Society of London, vol. vii, 1874, p. 180.

‡ Medico-Chirurgical Transactions, vol. lxi, p. 57.

§ *Lancet*, vol. ii, 1879, p. 577.

read another paper on the subject. At the same time, Dr. Sanders of Edinburgh, in the debate which ensued, mentions the fact that several cases which he now recognized to be instances of myxœdema had come under his notice.

One other notice of the affection concludes what has, up to the present time, been written on this curious disorder. It is that of Dr. George H. Savage,* "Myxœdema and its Nervous Symptoms." It is accompanied with photographs of two of Dr. Ord's cases.

Myxœdema is another instance of a cerebral disease being brought to the notice of asylum physicians by a medical man not connected with such an institution, and subsequently carefully studied by others similarly situated. Doubtless the hospitals for the insane, both in Europe and this country, contain many cases of the disease in question, and probably, now that attention has been directed to its marked characteristics, we will hear from some of our own superintendents on the subject.

Myxœdema is a disease which, as Dr. Ord has shown, has for its patho-anatomical feature, the deposit of a mucoid substance in various parts of the body, especially in the skin; or a degeneration and proliferation of the connective tissue. Probably both these conditions coexist in some tissues.

As a consequence of this state an appearance resembling anasarca is produced, with the exception that the pressure of the finger on the part does not leave an indentation.

The tissue is resilient and not boggy, like that into which water is infiltrated, as in ordinary œdema.

The face has very much the appearance, so far as the swelling is concerned, of that which is met with in cases of the toxic effect of arsenic. There is a puffiness of the

* *Journal of Mental Science*, Jan. 1880, p. 417.

eyelids, the lips are prominent, the nostrils are swollen, and the cheeks over the malar bones are red from capillary congestion.

Sir William Gull was much impressed with the "spade-like" appearance, as he called it, of the hands and fingers. These latter are "clubbed" as they so frequently are in those cases of heart disease in which there is an impediment to the return of blood to the right side of the heart.

The temperature of the body is, in all cases, below the normal standard.

Thus far all the instances of the affection reported have been in adult women, unless an exception exists as regards one in a man occurring in Dr. Savage's experience, in relation to which some doubt exists as to its identity with myxœdema.

The cerebral and nervous symptoms appear to be very decided. The intellect is notably weakened, and replies to questions are given in a sluggish and inexact way. The memory is imperfect, and the patient experiences a lack of confidence in herself, both as regards mental and physical power. The special senses are more or less perverted, and there are sometimes hallucinations or delusions. One case cited by Dr. Savage "was distinctly maniacal, sleepless, incoherent, violent at night." The most ordinary mental condition met with is, however, a lassitude or stupidity resembling the state generally known as acute dementia.

Such are the most marked features of the disease as described by the authorities I have mentioned.

Since the appearance of Sir William Gull's and Dr. Ord's papers, my attention has been directed to the subject, and I have been on the lookout for cases similar to those described by these gentlemen. A few days ago (April 22) an instance of the affection of a most undoubted character

came under my observation, the particulars of which I now proceed to describe. My account is based upon three careful examinations :

Mrs. H. S., aged forty-one, consulted me first, as I have said, April 22, 1880. I saw her again April 29th, and again May 6th. Her appearance was that of a person suffering from general œdema, the consequence of heart or kidney disease. The lower eyelids and the face immediately below them were turgid ; the skin over the forehead was rough and swollen in spots ; the nose was thick ; the lips, especially the lower one, protruded like those of a person who has received a severe blow upon the mouth ; and the skin over the malar bones was not only thickened, but for a space on each side the size of a dollar, was red with a hectic flush.

The neck was also greatly swollen, as were likewise the hands. All the fingers were "clubbed," but there was no incurvation of the nails.

Extending my inspections, I found that the whole surface of the body was similarly affected. At no place, however, could pitting be produced by pressure. As soon as the end of the finger was removed the depressed surface returned to its ordinary level.

It was very evident that this was a case of myxœdema, and the continuance of my inquiries served to confirm the impression derived from a simple inspection of the more obvious characteristics of the case.

The general sensibility of the skin was markedly diminished. Thus, on the cheek, the two points of the æsthesiometer could barely be distinguished when separated to the extent of an inch and a half—three times more than the normal distance, and at the ends of the fingers, where they should have both been felt at a distance apart of the twelfth of an inch, they had to be separated five-twelfths of an inch

before each was perceived. A like condition existed in the skin of the trunk and lower extremities.

At an early period she had suffered from pains in various regions of the head, but latterly these had disappeared, and there had been no similar disturbances of sensibility in other parts of the body. On the contrary, as the *æsthesiometer* indicated, sensibility was diminished. The ends of the fingers felt as if there were "tight thimbles on them," to use her own expression, and the soles of her feet as though they were padded or cushioned. The various sensations of numbness were present more or less in the face, the end of the tongue, and the arms and legs.

The muscular power of the patient appeared to be decidedly weaker than was normal. The gait was staggering, the feet were not lifted clear of the ground, the grasp of the hands was weak, and the articulation was sluggish and indistinct. There was marked difficulty of co-ordination both in the upper and lower extremities. Although the patient could stand with the eyes shut, she walked with an uncertain step unless her eyes were directed to the ground, as is the case in locomotor ataxia. She could not put the finger on any given part of the face unless she had her vision to guide her, and even with that assistance she did not readily and with certainty direct the movements of the hands.

The other special senses besides the touch,—which, as I have shown, was markedly lessened in acuteness,—were all more or less deranged. Ophthalmoscopic examination showed the existence of neuro-retinitis in both eyes, objects looked blurred and were generally apparently surrounded with a halo. Occasionally she had had momentary double vision. The pupils were equal in size but extremely slow to respond to an increased or diminished amount of light.

The hearing was diminished in acuteness. With the left ear she could not hear the ticking of the watch at a greater distance than twenty inches, and with the right ear twenty-six inches. The tuning-fork placed on the forehead was heard, but the sound was not intensified when the meatus was closed. On the contrary, it seemed to be lessened. I was therefore of the opinion that the auditory nerves were affected. The Eustachian tubes were pervious.

At one time there had been tinnitus, but latterly this had disappeared. There was no impaction of cerumen, and the drumheads were apparently healthy.

The senses of taste and smell were markedly diminished in power, the latter being almost entirely abolished. The lining membrane of the mouth and fauces had lost a great deal of its normal sensibility. Thus, she could not, by the taste or the feeling, from the contact with the tongue and mucous membrane, distinguish a clam from an oyster, or fish from roast beef.

The mental phenomena were not less strikingly exhibited. There were frequent hallucinations both of sight and hearing, and delusions that attempts were being made by certain Frenchmen she spoke of to injure her with oil of vitriol, which, she declared, they put into the bed in which she slept and the food she ate.

There was manifest deterioration of the mental power. In answering the simplest question she looked fixedly at the interrogator for fully a minute before speaking, apparently not comprehending its purport, or else uncertain what reply to make. Some quite simple matters she evidently did not understand at all. Thus she could not tell me how much sixty and twenty-five made, and when I asked her what a book was made of, she fixed her eyes on me for some time and finally said, "Oh, all those things," and I could get no other answer out of her.

Her memory was equally weakened. She required much prompting before she could tell where she lived, and made several errors, which, however, she corrected herself, in giving me the names of her children.

Perhaps her memory for words was slightly impaired, but certainly there was no decided aphasia. She could, without much difficulty, give the names of all articles I mentioned to her, and she exhibited no other evidence of defective articulation than that due to paresis of the tongue.

She slept badly, often awoke startled and was pacified with difficulty.

The hallucinations to which I have referred were not fixed. Those of hearing consisted of human voices telling her how the "Frenchmen" were going to proceed against her, and of the "Frenchmen" themselves abusing and threatening her. Those of sight were of entirely different objects, for, strange to say, she never saw the "Frenchmen." They consisted generally of apparitions of friends who had long been dead, and were most frequent in the afternoon and evening.

When I add that her appetite was bad, that her bowels were constipated, that the urine contained a large excess of urates without other abnormality, that the pulse was slow and feeble, and that the animal temperature was, in the axilla and under the tongue, never above 96° F., and often half a degree below this, I have given as full an account of the symptoms as is necessary for a full understanding of the case.

In regard to the connection of the phenomena with the morbid anatomical condition to which reference has been made two views have been expressed.

Dr. Ord regards the symptoms as being directly due to the fact that the peripheral terminations of the nerves are so surrounded and compressed by the mucoid tissue deposited about them, that they are prevented receiving impres-

sions in their full force, and that, hence, the central organs of the nervous system act less energetically than when excitations reach them in full force.

That this view may be correct is, I think, exceedingly probable; but the symptoms cannot all be accounted for in that way. It certainly will not explain the occurrence of hallucinations and delusions, or the periods of maniacal excitement which have been observed in some cases. It is true, as Dr. Savage admits, that delusions have been ascribed to the annihilation or reduction of peripheral sensations, and it is equally true that the blind may have hallucinations of sight, or the deaf hallucinations of hearing, but in all such cases, as well as in those of general paralytic insanity in which anæsthesia is present, there is ample reason for believing in the existence of central disease.

I must therefore agree with Dr. Savage in the opinion that the mental symptoms are the result of primary brain disease, probably to the deposit of the mucoid tissue around the cells of the nervous centres. In the case which I have had the opportunity of studying, there were symptoms of intellectual derangement before any swelling of the body or limbs was observed, and before any sensory disturbances occurred.

In the cases in which *post-mortem* examinations were made (those of Dr. Ord) the mucoid deposit was found in abundance throughout the brain as well as in almost every other part of the body, so that there is no improbability in the suggestion that the morbid process may begin there.

At the same time, the padding to which the nerves are subjected must certainly interfere with their healthy functionation, and, hence, I think it quite reasonable to hold the view, as I do, that the phenomena of myxœdema are the result both of central and peripheral disturbances.

THE THERAPEUTICAL USE OF THE MAGNET.*

By WILLIAM A. HAMMOND, M.D.

THAT a magnet is capable of exercising a strong physiological influence over animals and even plants, is a fact which, though overlooked or disregarded by physicians generally, experiment has definitely established. The reason for this neglect is doubtless to be found in the circumstance, that the promulgators of the science of magnetism in its relations to life have generally mingled so much chaff with the grain of wheat, that the latter has been lost sight of in the great superfluity of the former.

Several years ago the subject was investigated by the Baron von Reichenbach, a man who not only was endowed with profound learning, but was held in great respect by Liebig and other eminent scientists. He performed a large number of experiments upon neurotic men and women, and, though much that he deduced from his researches must be regarded as not proven, this can not be correctly alleged of all his conclusions. For instance, that the following observation is true, any one can easily determine for himself. I have repeatedly satisfied myself of its correctness:

“If a strong magnet, capable of supporting about ten pounds, be drawn downward over the bodies of fifteen or

* Read before the New York Neurological Society, October 5, 1880.

twenty persons, without actually touching them, some among them will always be found to be excited by it in a peculiar manner. The number of persons who are sensitive in this way is greater than is generally imagined.

* * * * The kind of impression produced upon these excitable people, who otherwise may be regarded as in perfect health, is scarcely describable; it is rather disagreeable than pleasant, and combined with a slight sensation of cold or warmth, resembling a cool or gently warm breath of air, which the patients imagine to blow softly upon them. Sometimes they feel sensations of drawing, pricking, or creeping; some complain of sudden attacks of headache; not only women but men, in the very prime of life, are found distinctly susceptible to this influence; in children it is sometimes very active."*

It is undoubtedly a fact that experiments such as these are liable to lead to very deceptive results. All persons are more or less under the operation of the "principle of suggestion," that is, of seeing and feeling as they are expected or told to see and feel. But, even when performed with every precaution taken to guard against the operation of this factor, phenomena not differing essentially from those observed by Reichenbach are produced. As an example of this, I adduce the following experiment, performed only a few days ago:

A gentleman, thirty years of age, and by no means of an impressionable nature, by request bared his right arm up to the shoulder, and laid it at full length on a table. I then bound a handkerchief tightly over his eyes, and desired him to tell me what sensations he felt in the arm. Having thus induced him to concentrate his attention on that part of his body, I held a strong horseshoe magnet immediately

* "Physico-Physiological Researches on the Dynamics of Magnetism," etc. English translation by Dr. John Ashburn, London 1851, p. 3.

over the nape of his neck and at about the distance of an inch from the skin. In thirty-two seconds, by the watch, he said: "I feel nothing at all in my arm, but I feel a queer, numb sensation at the back of my neck." In about ten seconds more he exclaimed: "It feels now if you were focusing as sun-glass on the back of my neck." I removed the magnet, and asked him if he felt nothing in his arm. "No," he replied, "I think not."

While he was talking, I hastily brought the magnet over the top of his head, at the same time stroking his arm with a paper-knife. "I feel you rubbing my arm with something," he said, "but the numbness has gone out of my neck, and is just on the crown of my head."

I then took the magnet away, and then moved it over the arm, from the shoulders to the fingers, at the distance of an inch or so from the surface. After two or three passes of the kind, he said: "Now I do feel something in my arm; it is a sensation as if you were sticking pins in it, though it does not hurt." After a few seconds: "Now it feels like the sun-glass all along the arm."

Other modifications of the experiment were made, and always with the like result. It was evident that the magnet produced irritable sensations in parts of the body where its proximity was not suspected.

Reichenbach supposed that such phenomena, and others which he described, were due to a force which he was the first to recognize, and which he claimed was present in the body. He called this the *odic* force—*od* or *odyle*. When it was present in great quantity, the subjects were regarded as sensitive, and were capable of exhibiting still more decided effects from the action of magnets than those already mentioned. These *sensitives* were almost invariably persons, mostly women, of strong neurotic temperaments. As he

says, he preferred those who were frequently troubled with periodical headaches—especially megrim, who complained of temporary oppression of the stomach, or who slept badly without apparent cause, talked during sleep, were restless at night during the influence of the full moon, who were readily disordered in churches or theatres, or were very sensitive to strong smells. When such persons were brought into a dark room, in which were several magnets, they were able after a few minutes to determine the relative positions of these objects by the luminous rays which were given off from their poles.

As illustrative both of the effects of magnets and of the necessity of guarding against unintentional deception on the part of the subject, I cite the following extracts from a letter written by M. Volpicelli,* of Rome, to M. Chevreul, of Paris:

"A physician," says the writer, "possessing an excellent reputation asserts that if a magnet be brought into contact with a nervous subject the magnetism produces many disquieting effects, and notably deranges the health. For my part, I do not think these disturbances are in any way due to the magnetic influence, whose real existence, however, I do not contest; but I attribute them to the influence of the person's imagination. I was invited by the learned medical professor to experiment upon a nervous subject at the *Hopital du Saint Esprit*, at Rome. I accepted the courteous offer, but instead of a magnet, I brought a piece of iron which was not in the least magnetized (?). The patient had no sooner seen this iron than he was seized with violent convulsions; his imagination was so excited that we could observe the greatest intensity of nervous disturbance.

*"Comptes Rendus," August 31, 1874.

"I made a second experiment: a magnet was placed in the hand of a person likewise affected with a nervous malady; at the end of a few seconds he became so violently excited that I was obliged to remove it. I was impressed with the conviction that the nervous disturbance was produced by the mere sight of the loadstone, and not by any magnetic action, and several days afterward I was able to convince myself by means of the following process: The same person was called upon to preside at a scientific reunion. I took powerful magnets and placed them in his chair, in his table drawer, and even beneath his feet, without his having the slightest suspicion of any of my preparations; during the *séance*, which continued more than two hours, he had no nervous disturbance whatever, and, at the conclusion of the meeting, he declared, on my asking him, that he felt perfectly well. On being told that he had been surrounded by powerful magnets, he manifested both surprise and fear, as though he were not quite sure of being in perfect health."

But the most philosophical, and at the same time practical essay on the action of magnetism on living beings is that of Dr. John Vansant.* His experiments were performed both on plants, which can not be suspected of being influenced by the "principle of suggestion," on insects and other of the lower animals, likewise unamenable, and upon human beings under circumstances calculated to avoid all suspicion of the action of any other factor than that of magnetism.

Dr. Vansant used small steel magnets, capable of sustaining about an ounce of iron, the ends of which were sharply pointed, and which had, for convenience of manipulation, a

* "On the Physiological Action of Magnetism." By John Vansant, formerly Passed Assistant Surgeon, U. S. Navy, and late Surgeon and Brevet-Lieutenant-Colonel, U. S. Army.—*Journal of Psychological Medicine*, New York, April, 1870, p. 264.

wooden handle in the middle. As Dr. Vansant's paper is not generally accessible, in view of the importance of the subject I quote the following description from his paper:

"My attention was first particularly directed to the subject of this communication in the winter of 1866, when I observed that a small magnetized steel rod, the *ends of which were finely pointed*, if brought carefully in contact with an exquisitely sensitive blister that had been accidentally produced on one of my fingers by pinching, gave rise, when the southward pole was applied, to a momentary sharp sensation, and seemed to cause the blister to be more painful after the magnet was removed. When the northward pole was used in the same way, no sensation could be felt at the moment of contact, and after removal the original pain remarkably subsided. Struck by this phenomenon, and yet almost doubting my own sensations, I proceeded to enquire if it were possible to recognize a difference between the two ends of a magnet by means of some organ peculiarly sensitive in its normal condition. On trial, I found that the conjunctival membrane of the eye would indicate by the feeling which pole it was touched with. I could lay, with care, the sharpened northward end of the magnetic rod on that membrane without pain or winking, but, the instant the southward pole was applied, no matter with how much delicacy, there was a sharp sensation and an involuntary slight closing of the eyelid. The effect was faint, but plain. The experiment was repeated on the eye of another person the same day, with similar results. After this, I made numerous experiments with magnets of different forms and powers (though not at any time with very large ones) applied to various parts of the body, and though I observed a definite set of symptoms after every application in the same manner to a given part, provided

sufficient time had elapsed between the applications for the organ to resume its ordinary state. Finally I became convinced of the genuineness of the phenomena—that they were not to be attributed to the imagination, and that they were as regular in their occurrence and quite as persistent as those following the administration of any medicinal substance.”

Dr. Vansant's experiments were mostly of a physiological character. He, however, records three cases in which the magnet was used as a therapeutical measure, and with instant effect. Thus: “Mr. I. R., a gentleman of rather delicate organization, had neuralgia in the upper part of one side of his face. I applied the northward (=) pole of a small bar magnet, not quite capable of lifting half an ounce with one pole, for a few seconds over the painful place. In about ten minutes he said the pain was increased and more localized. I then applied the southward pole in the same way, and in a few minutes he said the pain had nearly ceased. This gentleman *expected* to be relieved by the *first* application.

“Mr. M., a strong, unimaginative man, had facial neuralgia of malarial origin. I applied the — pole of the same small magnet last described over the seat of pain for about one minute. In five minutes he complained of the pain being worse. I then made an application of the + pole, and in less than a minute the pain almost subsided. After about an hour there was a recurrence of the pain for a short time, but much lessened in intensity. This person, also, was led to *expect* relief by the first plan of application.

“Mrs. S., a lady of remarkable sensitiveness, but great self-control, was suffering from excruciating neuralgia of the nerves passing out of the left side of the pelvis. The

day before, I had injected subcutaneously, near the painful place, one fourth of a grain of sulphate of morphia, with the effect to produce very great depression of the vital powers, but not to relieve the pain, which continued to be felt during the semi-consciousness that followed. On this occasion, without any knowledge on the part of the lady of what I was doing, I passed slowly, for about ten seconds, over the upper third of the thigh, the — pole of a strongly magnetized steel rod, four inches long by one third of an inch in diameter. The effect was surprising and alarming. The pain shifted its position, became more diffused and higher up, but was not relieved. A state of stupor intervened, her respiration was oppressed, a death-like pallor overspread her countenance, her features became contracted, her eyes sunken and half closed, the heart acted feebly, and the surface of the body was cool and covered by clammy perspiration. The depressing effect much resembled the action of morphia on the previous day, but was even greater. All these symptoms were manifested within a few minutes. After waiting about fifteen minutes, I applied the other pole, the + one, for the same length of time to a spot a little below the hip-joint, and in a short time new symptoms were manifested. The pain was apparently increased and more localized, the extremities cool, but the perspiration was checked, the breathing was deeper, the eyes closed naturally, and all the signs of depression began to vanish."

These extracts from Dr. Vansant's very interesting paper are sufficient to show the results of his researches. I come, in the next place, to detail my own observations.

Unlike Dr. Vansant, who used bar magnets, I have found the horseshoe form, such as that now exhibited, more available. It is better to have them all of one size, for then they

can be bound together and the power greatly increased. The poles can be separated by so inclining the magnet as to bring one pole nearer to the surface than the other. In many cases, however, it is advisable to use both poles, a measure impracticable with bar magnets. Moreover, the bar magnet soon loses its magnetism, whereas the horseshoe magnet, if the keeper be retained in its proper position, will suffer no deterioration in years of constant use. When it is advisable to act with great effect upon a very limited portion of the body, needles may be attached to one or both poles, or placed between a pair of magnets. When two or more magnets are united into a compound one, care must be taken that all the north and all the south poles correspond; otherwise the power will be greatly reduced.

I have, during the past two years, employed magnets to a considerable extent in my practice, mainly in the treatment of neuralgia, but it is only for a short time that I have used them in chorea and paralysis. It is these last classes of cases that I propose to consider in the present paper, so far as the therapeutical influence of the magnet is concerned.

CHOREA.

CASE 1.—A. C., aged ten, became affected with chorea, as nearly as could be ascertained, about the 5th of July of the present year. She came under my observation August 21st. At that time there were jactitations of all the limbs and of the muscles of the trunk and face. She had lost the power of speech. By means of a yoke lapping over the neck and shoulders, I attached two horseshoe magnets, each capable of supporting four pounds of iron, in such a way that one rested over the cervico-dorsal region of the spine, and the other over the sternum, the poles pointing downward. The magnets were applied at 1:30 P. M., on the 22d of August.

At 1:55 all choreic movements had ceased. At 1:57 she spoke a few words: "Yes—no—I don't know." At 2:05 she said, "I want to go home, mamma." The magnets were then removed. Up to this date (September 15) there has been no return.

CASE 2.—Similar to the first, but patient could speak. Magnets produced no effect, though repeatedly applied. Patient cured with arsenic in large doses.

CASE 3.—J. T., a girl aged eleven, was brought to me September 1st, to be treated for chorea. The case was unilateral, the movements being confined to the left side. One magnet was applied to the front of the left thigh, and the other to the cervical region of the spine. Movements ceased in eleven minutes. No relapse.

CASE 4.—W. L., a boy aged seven, choreic for three weeks, movements general. No result from magnets. Cured in twelve days with arsenic.

CASE 5.—C. D., a boy aged nine, choreic for two months, very much debilitated, not able to walk without repeatedly falling, movements general. No result from magnets. Cured in two weeks with arsenic.

CASE 6.—R. D., a girl aged nine, choreic for six weeks, movements general. No result from magnets.

CASE 7.—J. L., a girl aged nine, choreic for six weeks, movements confined to face and neck. No result from magnets. Still under treatment with arsenic, improving.

CASE 8.—D. T., a boy aged eight, choreic for a month, movements general. No result from magnets, though they were repeatedly applied and left on for an hour or more at a time.

CASE 9.—C. W., a boy aged seven, choreic for three months, movements confined to hands and face. No result from repeated application of magnets.

In all, I have used the magnet in nine cases of chorea. In two of them the effects were remarkable, complete cures being produced in a few minutes. In the seven others no result followed. It is probable that further observation will show that variations in the power of the magnets or the mode of application will be of advantage.

PARALYSIS FROM CEREBRAL HÆMORRHAGE.

CASE 1.—J. R., a gentleman, an engineer by profession, and a speculator in mines, while rising from bed at about eleven o'clock on the morning of September 2d, felt slight dizziness, and fell to the floor, but without losing consciousness. His wife helped him to the bed. He was hemiplegic on the left side, and had lost the power of speech. I saw him at 2 P. M. He was then unable to speak, and was paralyzed on the left side, as regards both motion and sensibility. He could protrude the tongue, and it came out straight. Could swallow.

On the 7th, at 2:30 P. M., I applied a double horseshoe magnet, capable of sustaining ten pounds of iron, to the side of the body, the poles pointing upward. Just before attaching it, with a strong towel, I tested the sensibility of the hand and foot. No force of pinching gave rise to the slightest evidence of its being felt. He could not move a muscle of either the arm or the leg. At 2:37 I pinched the skin of the left forearm. He at once made a grimace, and reached over with the other hand to scratch the part. The skin of the face was also sensitive. At 2:40 the thigh, leg, and foot, were sensitive. In fact, sensibility was restored to the whole of the paralyzed side.

I now left him, directing that the magnet should not be removed till my return. I saw him again at 5:25 the same day. He was then sitting up in bed and moving the left

arm as well as he had ever done, and he could move the leg in all directions. I requested him to get up, which he did, walking across the floor without difficulty, and scarcely dragging the leg in the least. The face was still slightly paralyzed, and he could not yet speak a word. Before leaving him I fastened two small magnets, each capable of lifting half a pound of iron, one to the paralyzed side of the face, and one to the nape of the neck, the poles pointing upward; and directed that they should be left in position all night. The next morning a message came to say that he had recovered his speech.

This gentleman returned home a few days afterward, entirely recovered, so far as I could perceive, except that the left side of the face was slightly weaker than the right. On the 22d of September he had another attack, and died comatose.

CASE 2.—This case is that of an eminent physician of this city, who, on the morning of September 30th, of the present year, became suddenly aphasic and hemiplegic. There was no loss of consciousness. I saw him at 2 P.M. of the same day, in consultation with Dr. W. H. H. Hall. The right side of the face was paralyzed, and motion was entirely lost in the right arm and leg. Cutaneous sensibility was abolished throughout the whole of the right side, as was also the sense of touch on the right side of the tongue. Patient retained the faculty of smelling, and the power of holding and passing the urine and fæces. He could not speak a word, but nodded or shook his head for yes or no. All the phenomena, as well as the previous history of the case, pointed to the existence of a clot, probably involving the left optic thalamus and the posterior third of the internal capsule. A year ago he had had a retinal hæmorrhage, and for several years had suffered from cirrhosis of

the kidneys. The patient was kept quiet. I saw him every day with Dr. Hall, but no medicine was administered, except a solution of bromide of sodium in infusion of digitalis (the heart was very weak) and a hypodermic injection of morphia, to which he had for several months been accustomed, at bedtime.

Yesterday, Oct. 4th, I saw the patient as usual. There were present his wife and his father, also a physician. His condition was unchanged, except that he could say "yes" and "no," and pronounce his own name after some one else. I pinched the skin of the forearm on the paralyzed side till my nails almost met through the skin, but there was no sensibility. I had taken with me a magnet, capable of sustaining about five pounds, intending to apply it as a therapeutical measure. My purpose was to place it against the left side, under the axilla, and to keep it in apposition with the surface by means of a towel passing around the body. While the towel was being got ready I laid the magnet against the paralyzed side, the poles pointing upward, in order to show his father how I designed employing it. It remained there less than three minutes, when I again quietly pinched the skin of the forearm, preparatory to applying the magnet more permanently. To my intense surprise, and that of all in the room, the patient gave a grimace, and, reaching over his body with the sound hand, took hold of the other and removed it to the opposite side of his chest. Upon examination, I found that the restoration of sensibility was thorough, and it has remained intact up to the present time. I left the magnet in contact with the body for several hours longer, but there was no further improvement.

If these cases stood alone, it might naturally be supposed that error existed somewhere, so contrary are they

to our clinical experience and our ideas of the connection between the symptoms and the lesions in cerebral hæmorrhages. But they are not isolated. Within the last week I have met with the report of two cases of like character occurring to MM. Debove and Boudet, and reported by the former gentleman.* In the first of these cases the patient, a man aged 45, was suddenly struck with an apoplectic attack. There was complete hemiplegia of sensibility on the left side, and the power of motion, though not altogether abolished, was much diminished. There was sensory hemianæsthesia—smell, taste, hearing, and sight on the left side being abolished or impaired. There was also color-blindness.

Six days after the attack, when the condition was unchanged, at 6 P. M., two magnets were applied to the left side, one against the thorax and the other to the knee. At 6:30 the patient felt a severe pain in the head; at 7, the pain had disappeared; at 8, sensibility and motility had begun to reappear; at 8:30 the magnets were removed, and the patient was carefully examined. It was found that the general sensibility had returned to the whole of the previously anæsthetic region; that the patient walked easily without dragging the limb; that the strength of the left hand had increased over five-fold; that the taste, smell, hearing, and sight were entirely restored, and that the ability to distinguish colors was regained.

The other case was that of a woman, aged 65, who, on the 30th of March, had an apoplectic seizure. Complete right hemiplegia and hemianæsthesia, from the face downward. Integrity of the special senses impaired, but

* Note sur deux nouveaux faits d'hémiplégie de la motilité et de la sensibilité. Guérison par une application d'aimants.—*Archives de Neurologie*, I, 1, p. 92.

not completely abolished. On April 8th, at 3 P. M., a strong magnet was placed between the arm and the chest on the right side, the poles pointing toward the axilla. Ten minutes after this application the sensibility had returned to the arm, and at 3:30 it was complete over the whole of the paralyzed side. The magnet was left in its position for eighteen hours. On the 9th, the patient could walk about the room, and had begun to talk, and on the following day there was no trace of paralysis, either of motion or of sensibility, except a slight hesitation in motion.

It appears to me that all these cases, as well as those of hysterical hemianæsthesia which have been reported as cured by the magnet and other metallic applications by Charcot and his pupils, are instances in which, if there were any organic lesion at all, this was mainly situated in the optic thalamus. It is well known that the hemianæsthesia, as well as the hemiplegia, due to lesions of this organ, is more or less transitory in character, and that the former often suddenly disappears after persisting a few days, or even hours. It would be asking too much to claim that the cures in the instances cited, whether of chorea or of paralysis, were due to any specific influence of the magnet. It is possible that the association was a mere coincidence, or that the relief was due to a strong mental impression made on the mind of the patient. At any rate, the cases are interesting as facts, and are worthy of being allowed to exert an influence in directing further inquiry. As such, they are submitted to the consideration of the Neurological Society.

INSANE ASYLUM INVESTIGATION.

The following letter and the accompanying paper, prepared at the request of the Investigating Committee of the Senate, were sent to many distinguished alienists in this country and in Europe, and a large number of replies received. Of these, not one was in opposition to the suggestions made, while several contained additional recommendations of great value. These have been laid before the committee:

43 WEST 54TH STREET,
NEW YORK, *August 25, 1880.*

DEAR SIR :

At the last session of the Legislature of the State of New York, the Hon. W. C. Woodin introduced into the Senate the following resolution, which was passed at once without opposition :

" Resolved, That a special committee consisting of three Senators be appointed by the President of the Senate with power to send for persons and papers and to employ a stenographer, whose duty it shall be to investigate abuses alleged to exist in the management of insane asylums, as well as to inquire into the general subject of lunacy administration in this State, and to make a report of the results of their investigations at the next session of the Legislature, by bill or otherwise ; and as to what legislation, if any, is necessary to secure improvement in the administration of the affairs of insane asylums."

The President of the Senate appointed Senators Woodin, Fowler and Pitts the members of the committee under the resolution. A preliminary session was held in the City of New York on the 20th of July, and I was requested by the committee to make such suggestions relative to the subjects to be considered as might seem proper. In compliance with that request the following document was submitted, and is now published by consent of the committee.

It is respectfully requested that those alienists and neurologists to whom it is sent will, if they see occasion, make such further suggestions toward ameliorating the condition of the insane as may seem to them expedient.

It is not to be expected that all necessary improvements can properly be made by direct legislative interference, such as by the enactment of special laws for remedying defects and extending privileges. A properly-constituted Lunacy Board may safely be granted sufficient powers in the premises and allowed to attend to all minor details of management. Thus several of the suggestions made in the paper submitted should, in the event of the creation of such a Board, be relegated to its consideration. Expressions of opinion, however, from competent authorities, on *all* that concerns the management of the insane in the State of New York, cannot fail to be of service to the committee in the performance of its arduous duties, and opinions, whether favorable or unfavorable to the views expressed in the accompanying paper, are respectfully solicited, and will be laid before the committee.

Very respectfully,

Your obedient servant,

WILLIAM A. HAMMOND M. D.

SUGGESTIONS FOR IMPROVEMENTS IN THE
MANAGEMENT OF THE INSANE AND OF HOS-
PITALS FOR THE INSANE IN THE STATE OF
NEW YORK.

I.

EVERY letter addressed by a patient in a lunatic asylum to any person in authority over such asylum, or to any official of the State, should not be detained under pain of such detention being considered a misdemeanor. Letters addressed to other persons should be forwarded or not at the discretion of the Superintendent, but in case he should decide not to forward them, they should be at once enclosed to the Commissioner in Lunacy with his objections, and this latter official should decide whether they should be sent to their destination or not. In no case should any such letter be destroyed or retained by the Superintendent or other officer of an asylum, under pain of such detention or destruction being considered a misdemeanor.

Under the present system, the option of sending the letters of patients rests entirely with the asylum officials, and thus the lunatic is more effectually cut off from communication with the external world than a convict in a penal institution. Letters, therefore, containing complaints are generally, if not always, destroyed; many complaints and reflections on the treatment received are doubtless exaggera-

ted or altogether unfounded. But some of them are true and ought to be investigated. The provisions here suggested are almost in exact accordance with the English law on the subject.

II.

It should not be allowable for any one but a medical officer of an asylum to order a patient to be placed in mechanical restraint or in seclusion, and even then a record of such instance should be kept in a book provided for the purpose. This book should always be open to the inspection, not only of officials in authority, but to the counsel and family physician of the patient, and it should clearly show in detail the reason for the use of such restraint or seclusion.

Since the action of members of the Neurological Society, and of the Society itself, toward securing reform in the treatment of the insane, several asylums have provided books for the purpose mentioned, but the next superintendent may abolish these, and others have never adopted them. Hence the necessity of a law or regulation on the subject.

At present ignorant and brutal attendants, some of them selected from the very lowest class, can at their option from whim, caprice, anger, or any other inadequate cause, order or place a lunatic in the camisole, the crib, or other mechanical restraint. There are many instances on record of serious bodily injury, and even death having been produced by mechanical restraint improperly applied, to say nothing of the deleterious effect caused on the mind of the patient by such procedure.

III.

The forms of mechanical restraint require to be designated by law or regulation. The Utica crib should be

altogether abolished as a barbarous appliance, and the camisole should be modified so as to fit it more adequately for its purpose, and at the same time render it less liable to do harm.

There are instances of death having been produced in this country by the crib. It is at all times a most unphysiological instrument of restraint for patients suffering from many forms of insanity, and in those instances attended with debility in which its use is insisted on by some superintendents, it is unnecessary because the patient is so weak that he is not likely to be troublesome or to endeavor to assume the erect position. All such persons should be carefully watched by nurses and not left in a cage.

The camisole should be made to conform to the model devised by Magnan.

The forms of mechanical restraint should be uniform in all the asylums of the State, and not left to the whim, caprice or crude notions of some superintendent appointed perhaps entirely from partisan political considerations.

IV.

Many lunatics refuse to take food, and therefore require to have it administered to them by force. This necessitates a delicate operation, and often one requiring great skill and patience. At present it is, in some asylums at least, done by attendants or nurses. It should by law or regulation be required to be performed by a medical officer of an asylum, or at least in his presence.

Permanent injury has, as I know of my own knowledge, resulted from a disregard of this obviously humane provision.

V.

The counsel and family physician of any lunatic, certified by a near relative or by a judge of any court of this State to be such, should always be allowed access to his client or patient.

This is the law in Massachusetts so far as counsel is concerned. It is manifestly a proper provision, both as regards the counsel and the physician, and its enactment would at once tend to enlarge the rights of the lunatic and to render superintendents and other asylum officials more amenable to public opinion.

VI.

No person should against his will be confined in a lunatic asylum unless it is distinctly stated in the affidavit, now required by law, that such person cannot with safety to his own life or property, or the lives or property of others, be allowed to go at large. Paupers, or those whose relatives or friends are unable to take charge of them or to provide for suitable medical treatment, to be exempted from this provision; but the fact of such inability should appear in the affidavit of the physicians and be otherwise properly established.

This was essentially the law in New York until a late period. Many lunatics whose form of insanity is not such as to make them dangerous, are now confined in asylums as a matter of routine practice, when they could with greater advantage to their health be treated at home by their own physicians. The asylums are thus crowded with mild and otherwise unsuitable cases, and the insanity of these patients is often aggravated by association with lunatics suffering from violent and often pronounced types of the disease. The practice of depriving an insane person of his

liberty simply because he is insane is one not in consonance with sound political, social or medical science, and is comparatively of recent origin.

VII.

All lunatic asylums should have a board of visiting physicians, whose duty it should be ~~at~~ stated periods to visit the wards of the institution, to consult with the superintendent as to the treatment of patients, and to examine into the system of management. They should report to the Commissioners in Lunacy the results of such examinations.

With the superintendent, they should constitute the medical board of the asylum, should examine all candidates for appointment as physicians, and recommend to the Board of Commissioners in Lunacy, those for positions, whom they may find best qualified.

In this way a hospital for the insane would be assimilated in its management to other hospitals.

This measure would tend more than any other to destroy the mystery which now attends the management of the insane and to mitigate the sense of distrust which the public now feels toward lunatic asylums.

VIII.

There should be two additional Commissioners in Lunacy, who should have the same powers and functions as are now provided by law. The State should be divided into three districts, with one Commissioner for each. Every asylum, poor-house, and other place licensed to keep insane persons, should be visited at least once in two months without previous notice.

At present one Commissioner cannot do the duty as it

should be done. The law in regard to this official requires very little amendment, but the work is too onerous for any one person to perform efficiently, even were he entirely competent.

IX.

The three Commissioners should be a Board of Commissioners in Lunacy, who should have the charge of all asylums public and private in the State, who should receive the reports of the individual Commissioners and act upon them, establish such rules and regulations for the government of all asylums as may be necessary and proper, and make all appointments of medical officers and nurses, and remove such on the recommendation of a medical board or a Commissioner in Lunacy.

Such a commission would possess all the elements of efficiency. The individual members would be familiar with their duties, and if it were further provided that their districts should be changed once in every year, each one would in turn become familiar with all the asylums of the State.

X.

No person should be permitted to keep a private institution for the reception and treatment of insane persons till he has been examined by the Board of Commissioners in Lunacy, and found to be of good moral character and professionally qualified for the responsible duty in question. He should then be duly licensed to keep such institution, which license may be revoked by the Board for cause. The penalties for a violation of this provision should be severe.

These appear to me to be the more important of the changes necessary to be made in the system of manage-

ment of the insane in this State. It is not intimated that all the asylums require legislative interference in the details of their administration. The Hudson River State Hospital and the Willard Asylum, for instance, are admirable institutions admirably conducted, but superintendents are liable to resign, to be removed, and to die, and boards of trustees are subject to changes, and hence the management should be placed above all these contingencies.

All of which is respectfully submitted,

WILLIAM A. HAMMOND, M.D.

To the honorable, the Committee of the Senate of the State of New York,
appointed to investigate the Insane Asylums and Insane Administration.

ON OBSCURE ABSCESES OF THE LIVER, THEIR
ASSOCIATION WITH HYPOCHONDRIA AND OTHER
FORMS OF MENTAL DERANGEMENT, AND THEIR
TREATMENT.*

PART I.

BY WILLIAM A. HAMMOND, M.D.

THAT abscess of the liver may exist without giving rise to any marked local or general symptoms is a point with which those who have investigated the subject have long been familiar.

Thus Twining† asserts, as the result of his personal experience, that abscess of the liver may run its course without active pyrexia, with but little pain in the part affected, and sometimes without palpable enlargement of the liver.

Mr. Geddes,‡ in a valuable paper on abscess of the liver, reports that of twenty-eight cases that came under his observation, pain existed but in thirteen, dysentery in ten and pyrexia in but five cases.

Budd§ declares that when the abscesses are small and

* The first part of this paper was published in the *St. Louis Clinical Record*, for June, 1878. On account of the importance of the subject it is now republished here, and a second part embracing additional observations added. Read before the New York Neurological Society, June 3, 1878.

† Clinical Illustrations of the more important Diseases of Bengal, etc. London, 1835. Vol. i, page 297.

‡ Transactions of the Medical and Physical Society of Calcutta. Vol. vi.

§ On Diseases of the Liver, London, 1845.

central, and where they do not cause any general obstruction to the passage of the bile, neither tumefaction nor jaundice ensue; nor, in the same circumstances, is pain usually felt.

Copland * says: "Suppuration of the liver, however, has occurred where the symptoms of hepatitis have not been observed, and where the abscess which has formed has not been suspected during life—pain, tumor in the hepatic region, jaundice, etc., not having been present. Instances of this kind have been recorded by many writers in this country, and by most of those who have treated of intertropical maladies. In many cases the disease has not been recognized in consequence of the imperfect examination of the case; in others, from the complications or forms in which it has occurred, its association with gastro-enteritis, with pneumonia, or with dysentery, or its appearing, consequently, upon continued or remittent bilious fever, or after ague, will sometimes entirely mask it from the superficial or careless observer."

Watson † says that when small abscesses in the liver result from pyæmic disease, they may remain for years without apparently disturbing the general health.

Aitken ‡ asserts that sometimes there are no symptoms pointing to disease of the liver, and the difficulties which embarrass the diagnosis of suppurative hepatitis can not be overrated, and quotes Louis to the effect that in thirteen per cent. the disease runs a perfectly latent course, and that in only eight per cent. are the symptoms at all well marked.

* A Dictionary of Practical Medicine. New York, 1855. Vol. ii, page 851.

† Lectures on the Principles and Practice of Physic, American edition. Philadelphia, 1872. Vol. ii, page 631.

‡ Science and Practice of Medicine. Third American edition (Clymer). Philadelphia, 1872. Vol. ii, page 683.

Flint* declares that the clinical history of hepatic abscess is obscure, and that the symptoms rarely point distinctly to this affection. Febrile movement is rarely marked and may be wanting. Jaundice is rare. The appetite and digestion may be more or less disturbed or they may be unaffected. The nutrition may be but little or not at all affected. Reference is now had to symptoms prior to the discharge of pus or its appearance beneath the integument. The affection is not unfrequently completely latent. It is not uncommon, in tropical countries, to find an abscess of the liver in bodies dead with various diseases, when hepatic abscess had not been suspected during life, and the first intimation of the existence of this affection during life in certain cases, may be the discharge of pus from the stomach, bowels, or air-passages.

Simon† says that the diagnosis is often obscure; that all physicians who have seen much of the disease insist on this fact by reason of the variability of the symptoms; and that there are cases which escape the identification of the most able and experienced practitioners. They are latent, and the autopsy alone reveals their existence.

Stokes‡ says: "Suppuration of the liver has occurred without any of the characteristic symptoms of hepatitis. Thus, in the twenty-sixth observation of Andral, numerous abscesses, with redness and softening of the hepatic tissue around them were found, yet the patient never had pain or tumor in the region of the liver, nor was he jaundiced; in this case there was complication with acute pneumonia and gastritis. In another case, where a scirrhus state of the stomach existed, numerous partial inflammations of the

* Practice of Medicine, third edition, 1868, page 529.

† Nouveau dictionnaire de médecine et de chirurgie pratique, t. xv. Paris, 1872. Art. Foie, page 103.

‡ Cyclopaedia of Practical Medicine. Philadelphia, 1859. Vol. iii, page 168. Article: Liver, Diseases of.

liver and an abscess were discovered. The patient never had either sickness or pain, either in the hypochondrium or right side of the chest. The same author details a case where a hepatic abscess with gangrene was discovered after death, and in which all the characteristics of a hepatic affection were absent. The patient labored under a chronic bronchitis and gastritis. We have known of two cases where numerous abscesses were found in the liver, and in which the symptoms were merely those of continued fever, without any indication which could lead to the suspicion of this disease."

Dutroulau * says there is perhaps no physician in hot countries to whom it has not occurred to find in the cadaver abscess of the liver which had not been suspected during life.

Rouis,† who has written a most elaborate memoir on hepatic abscess, gives it as the result of his observations, that of one hundred and forty-three cases, the symptoms prior to suppuration were either entirely absent or were undefined in sixty-two cases, while in thirty cases they were undefined during the whole progress of the disease, and in nineteen were either masked or latent.

Frerichs,‡ whose classical treatise has, for several years, formed the basis of much that is written on liver diseases, says, in speaking of abscess of the organ, that cases are not unfrequent where local examination furnishes no data whatever for proving a diagnosis, where neither the size nor the form of the gland is altered, and where there is no increase of tenderness. Cases of this kind have, as

* *Memoire sur l'hepatite des pays chauds et les abcès du foie*, *Memoires de l'Academie de Medecine*, t. xx, 1856, p. 243.

† *Des abcès du foie*, *Recueil de Memoires de Méd. Mil.*, 1857, 2d serie, t. xix, page 70.

‡ *A Clinical Treatise on Diseases of the Liver*, New Sydenham Society, Translation. London, 1869.

he says, repeatedly come under his own notice, and Andral, Catteloup, and others, have recorded others (vol. ii, page 124). And again he asserts that the fundamental lesion is either indicated by no symptoms whatever or by insignificant derangements which are easily overlooked (vol. ii, p. 121). He also refers to instances (and I shall presently cite cases in illustration from my own experience) in which hepatitis is developed under the mask of non-febrile gastric catarrh and the existence of a more important lesion is only indicated at an advanced stage of the disease by the occurrence of irregular attacks of rigor.

Sir James Ranald Martin* says, in illustration of the point in question: "I remember hearing of the case of a trooper in Her Majesty's 11th Dragoons, who fell from his horse on parade at Cawnpore and was killed on the spot by a fracture of the skull and laceration of the brain. On *post-mortem* examination an abscess was found in the liver; and this, although the man had never expressed any feeling of indisposition and had not for months been absent from duty."

"Soon after I went to India I was requested by my friend Mr. Nicolson and Dr. Wm. Russell to assist at the examination of the body of a deceased magistrate of Calcutta. He had but a week previously returned from a hog-hunting party feeling slightly indisposed. There had been no fever nor any symptom to indicate danger, so that his sudden death took his friends by surprise. The appearance of the body exteriorly was that of a powerful and healthy man, but in the liver were found seven abscesses, distinct and separate, and varying from the size of a common nut to that of an orange. I was then very

*Influence of Tropical Climates, etc., 2d edition. London, 1851, p. 483.

young, and this case made a deep impression on my mind as to the concealed dangers of such cases."

It would be easy to go on and quote from many other authors to the same effect, viz.: that abscess of the liver may exist without exciting suspicion either by any local or general symptoms; but the foregoing are probably sufficient for the purpose. I therefore pass at once to the recital of the particulars of several cases which have come under my own observation.

CASE 1.*—B. B., of New York, æt. 45, while suffering from spinal paralysis, fell out of bed and struck his right side violently against the edge of a wooden bucket. There was never any decided pain in the part and no enlargement of the right side of the abdomen. There were, however, gastric derangement, some pain at times in the right shoulder, and very marked hypochondria. Strong pressure over the region of the liver caused slight uneasiness, but no sharp pain. By pressing the fingers of one hand in the lowest intercostal space and a little posteriorly, and then tapping smartly with the fingers of the other hand over the anterior surface of the liver, I thought I detected fluctuation. But there was no fever and no exhaustion except that fairly attributable to the spinal disease. Deeming the operation justifiable, and believing that even if there were no pus the procedure would not lead to any serious consequences, I determined to puncture the liver with the needle of the aspirator. I selected one of moderate size and introduced it through the tenth intercostal space rather behind a line let fall from the middle of the

* This case is reported at length, so far as relates to the affection of the spinal cord with which the patient suffered, in my "Treatise on Diseases of the Nervous System." Sixth edition, New York, 1876, p. 486, and incidental reference is made (p. 488) to the fact of the hepatic abscess and the operation for its relief.

right axilla. At a depth of an inch and three-quarters pus began to flow, and fifteen and one-half ounces were evacuated. The needle was retained *in situ*, while the full vacuum of the instrument was maintained for about three minutes, and there being no more pus obtained, the instrument was withdrawn. I should add, that care was taken to make the opening valvular by drawing up the skin so that the puncture in the integument should not correspond with that made in the liver.

No unpleasant symptoms followed this operation. The patient's general health, as well as his mental condition, greatly improved, and, so far as I could ascertain, there was no reaccumulation of the pus. He remains well, except that he is partially paralyzed in both lower extremities from the spinal disease with which he had previously suffered.

CASE 2.—E. P. R., a prominent citizen of Auburn, in this State, had, for several years, been under my charge for cerebral symptoms, the result, apparently, of over-mental labor. At the time I first assumed charge of this gentleman, he was about seventy years of age and had, a short time previously, had a slight seizure, apparently, of cerebral hemorrhage, but not followed by any permanent paralysis. He regained a very good degree of health, and was able to attend to the management of a large property and to several companies of which he was president or director.

In August, 1876, he again consulted me. There were then, great depression of spirits, irregular action of the heart, gastric derangement, alternate constipation and diarrhœa, and a slight yellow tinge of the conjunctivæ. Examination by Pettenkofer's test showed, however, no bile in the urine.

Upon inspection, there was no enlargement of the right

side of the abdomen to be perceived; there was no distinct pain in the liver and but slight tenderness on pressure, neither was I at all sure that I detected fluctuation. Once, however, on making this examination, I thought I felt it; but it was certainly obscure. The fear of death and other morbid apprehensions were, however, so great that I determined to aspirate the liver, encouraged in this idea by the success which had followed a like operation in the case of the patient whose case has just been described. On the 16th of August, therefore, in presence of his son, a prominent official of the State, I introduced a small aspirator needle, as in the previous instance. At a depth of two and seven-eighths inches, pus flowed. Eight and a half ounces were evacuated. A vacuum was maintained as before for several minutes before the needle was removed.

This patient made an excellent recovery. The mental symptoms disappeared at once, the stomach gradually recovered power and tone, and the general health was, so he told me, better than it had been for years. Repeated examinations have failed to reveal the existence of either tenderness or fluctuation in the liver. The brain remained in excellent condition, and though occasionally, from overwork or advancing years, there were evidences of cerebral trouble, this never amounted to anything more than a slight dizziness at times, or temporary inconvenience. There has never been, since the operation, any approach to hypochondria.

CASE 3.—J. N. C., aged about forty-eight, of West Virginia, first consulted me in April, 1877, for symptoms apparently resulting from cerebral hyperæmia. On examination, I found, among other conditions, partial deafness of the right ear, which depended, as further inspection showed, on a small sebaceous or molluscous growth obstructing the

external meatus. I removed this, and in consequence, with but little other treatment, his condition greatly improved, and he returned home within a week feeling more comfortable than for a long time past.

But in about a month he returned, suffering from a partial return of his former symptoms. Examination showed that the hyperæmic condition of the brain still existed, though not to as great an extent as formerly. He was also depressed in spirits, the stomach was deranged, nausea was frequent, there were irregular action of the heart and a peculiar livid appearance of the face and neck which I had not noticed at his former visit. Insomnia was a marked symptom, as it had been when he first came under my notice.

I applied the actual cautery to the nape of the neck and administered bromide of sodium and ergot, together with pepsine and powdered charcoal. Under this treatment there was again amendment, and the patient left for home after a few days.

During the greater part of the summer he remained in a very excellent state of health, but in August he again came to New York to place himself under my charge.

At this time he was, in some respects, worse than I had yet seen him. Insomnia was distressing; when he did sleep there were unpleasant dreams; he was apprehensive of impending death, insanity or paralysis; his thoughts were constantly of himself and his symptoms; there were pain in the head, a sensation of weight at the vertex, and occasional vertigo; the action of the heart was extremely irregular and at times intermittent; the respiration was constrained, and there was also the peculiar lividity of the face and neck which I had noticed on a former occasion. Dyspepsia was also present to an excessive degree, and the

bowels were constipated. A slight yellow tinge was present in the conjunctivæ. On examining the blood and urine, slight but distinct evidence of the presence of bile was obtained by the use of Pettenkofer's test under the microscope.

My attention was now for the first time directed to the liver, but careful examination failed to show any enlargement or tenderness. I thought, however, that I detected fluctuation. Inquiry revealed the fact that the patient had, several years previously, suffered from malarious attacks, and it was indubitable that he was living in a malarious region.

On the evening of August 21st I went to his hotel to make another examination of the abdomen. Still there was neither enlargement nor tenderness to be perceived, but I was again under the impression that there was fluctuation, and, as I thought, in the right lobe. In order to be more assured on this point, I introduced the needle of a hypodermic syringe through the ninth intercostal space into the liver, and at the depth of about an inch and a half, on exhausting the syringe, obtained pus. This was clear, creamy, and without odor. My opinion was now, of course, fully formed, and I determined to aspirate the liver on the 23d.

Accordingly, at about three o'clock on the afternoon of that day, in the presence of and assisted by his brother-in-law and servant, I introduced, through the ninth intercostal space, at a point about an inch posterior to a line let fall from the middle of the right axilla, a medium-sized aspirating needle. I did not, in the first place, make a vacuum in the aspirator, but carried the needle—taking care to make a valvular opening—a little forward of a line perpendicular to the median line of the body and at a depth of two inches. On exhausting the aspirator the instrument filled up rapidly

with a brownish-colored pus entirely unlike what I had obtained with the hypodermic syringe. On emptying the instrument, it was perceived by all in the room that this pus was of a highly offensive odor. After extracting about ten ounces, and there being no further flow, I maintained a vacuum for a few minutes, and then, withdrawing the needle, reinserted it at the identical place where I had introduced the hypodermic syringe, *i. e.*, about on the same plane, but an inch and a half anterior. At the depth of an inch and three-quarters, on exhausting, there was another flow of pus like that obtained with the syringe, and like it, free from odor. The quantity was about four ounces, making a total of fourteen ounces in the two cavities.

For several days afterward the patient suffered from pain and uneasiness in the region of the liver and was in an extremely nervous condition, but gradually these symptoms disappeared, and he is at this date (May 13, 1878), as I learn by a letter just received from him, in excellent health, and on the point of going to Europe as one of the State commissioners to the French exhibition. Since the operation I have repeatedly seen him. His cerebral symptoms have entirely disappeared, his complexion is clear and healthy, his stomach and bowels perform their functions perfectly, and he is able to transact an immense business with comfort to himself and satisfaction to all connected with him.

CASE 4.—W. J. S., aged about thirty, of Western Pennsylvania, first came under my care over three years ago, with symptoms indicative of cerebral hyperæmia with gastric disturbance. The general health was bad, the body was emaciated, the urine was loaded with urates, and the condition was rendered much worse by the persistent wakefulness. Under the treatment given him he improved greatly and returned home after ten or twelve days to

resume his business. But at intervals of six or eight months he visited New York to consult me, there being occasional partial relapses, more, as I thought, from over mental exertion than from any other cause.

On April 22d of the present year, he again visited me. At this time he was suffering from pain in the head, insomnia, and hypochondria of a very decided form. The stomach was deranged to such an extent that nearly any article of food caused dyspepsia, characterized by pain, burning, nausea and vomiting. Examination of the urine showed a large excess of phosphates, but no evidence of bile. The conjunctivæ were slightly tinged and the complexion was sallow.

The body was more emaciated than at any previous time that I had examined this patient, and altogether I regarded his whole condition as being worse than when he first came under my notice.

At this time I did not make any physical exploration of the liver, but at his second visit, April 24th, I examined the whole abdominal region very carefully. The absence of adipose tissue enabled me to do this with more certainty as to the result, than if there had been a large deposit of fat in the omentum or abdominal walls.

In the first place there was no marked enlargement of the liver. The right side of the abdomen was no more prominent than the left, and though the inferior border of the liver extended an inch lower than is usual, yet I have frequently known this to be the case when the organ was shown on *post-mortem* examination to be entirely healthy.

There was no tenderness over any portion of the organ that could be detected by abrupt or steady pressure on the abdominal walls. At no time had the patient complained of any pain in the region of the liver.

There was, however, distinct fluctuation, more evident when the fingers of one hand were pressed firmly in the eighth intercostal space of the right side, while the fingers of the other were struck lightly on a point an inch to the right of, and a little above, the umbilicus.

Under these circumstances I advised a tentative aspiration, and the patient agreeing to my suggestion, I prepared to operate on the 26th.

Before doing so, however, I again made a careful physical exploration. There was now some tenderness when strong pressure was made over the eighth and ninth intercostal spaces, but I regarded this as being due to the manipulations of the previous examination. Fluctuation was still distinct.

I introduced the smallest needle of the instrument, one not larger than that of a small hypodermic syringe, through the eighth intercostal space, at a point corresponding to that punctured in the previous cases, taking care to make the opening valvular. At a depth of two and three-quarter inches, pus of a canary yellow color, of creamy consistence, and entirely free from odor, flowed, and eight and a half ounces were evacuated. A vacuum was maintained for about three minutes, during which time the point of the needle was moved so as to reach other parts of the cavity, and then the instrument was withdrawn. There were no untoward symptoms of any kind. The patient was kept in bed for twenty-four hours and was then allowed to walk about the room. On May 2d he visited me at my residence much relieved in every way. He had slept well since the operation, had improved in appetite and spirits, was free from dyspepsia. The pain in the head had ceased and his complexion had lost its characteristic sallow tinge. A few days afterward he returned

home. On the 7th he wrote me that the journey had been unattended by bad effects, and that he was going to his business every day.

CASE 5.—F. C. S., of Rhode Island, aged forty-eight, and actively engaged in a large manufacturing business, consulted me October 19, 1877. The symptoms were, pain in the head, occasional vertigo, wakefulness, great mental depression, dyspepsia, and other indications of cerebral hyperæmia. I administered bromide of sodium, and ergot, applied the actual cautery to the nape, and advised the use of ice nightly to the same locality.

I saw him again a month subsequently. He was then much improved in every respect except in the one point of mental depression, which still continued about to the same degree as when he first visited me. The cauterization was repeated and the internal medication continued almost unchanged.

During the next month he regained very nearly his normal health, but was still somewhat depressed in spirits.

On May 7th he again visited me. Several weeks previously all his old symptoms had returned, and the hypochondria being present to an alarming extent, his friends had persuaded him, in company with his brother, to make a journey to the South, in the hope that change of air and scene might prove of service. He got as far as Charleston, and there being no amendment, had returned to New York on his way home.

When he came to see me on the date above mentioned, his condition was certainly deplorable. The physical symptoms which had been present when I first saw him had returned in full force, but the morbid state of mind was far worse than at that time. He had lost all interest in life, though at the same time full of the most gloomy apprehen-

sions in regard to himself. He spoke repeatedly of an utter inability to concentrate his thoughts upon anything outside of his own sensations, real or imaginary, and of passing night after night in absolute wakefulness. As regarded the termination of his disorder, he was sure it would be either death or insanity, and he did not care which so that it came at once.

That excessive mental labor and anxiety had a good deal to do with inducing his disease, I had no doubt, and that this disease was cerebral hyperæmia, I was equally sure, but at the same time I could not overlook the fact that there were other symptoms—notably, the extreme degrees of hypochondria approaching insanity—which could not, probably, be attributed to the hyperæmic condition of the brain. The gastric disturbance was great; there was no appetite; the bowels had been obstinately constipated, and this condition had been followed by a severe attack of diarrhœa; the tongue was coated, and the complexion was sallow.

At his visit the following day I made a thorough examination of the abdomen, but could detect no signs of liver disease. Bearing in mind, however, my former experience, I advised exploration with the aspirator, to which operation he at once gave his consent, saying he did not care what was done to him.

Accordingly, on the 10th, accompanied by my friends, Dr. C. H. Alden, Surgeon U. S. Army, and Dr. Clinton Wagner, of this city, I visited the patient for the purpose of performing the operation. Previously to doing so, however, a very careful and thorough examination was made by Drs. Wagner and Alden. Both the gentlemen agreed that there were no local signs of hepatic abscess or any such general symptoms as are commonly supposed to indicate the existence of the disease in question. My own examination,

made at this time, failed, as in the previous exploration, to afford any local signs of abscess. But, taking into consideration the results of my former experience, recognizing the intimate relation existing between the liver and the brain, and the comparative freedom from danger of aspiration when properly performed, these gentlemen said nothing to dissuade me from the attempt I proposed to make. It was very evident, however, that they were doubtful of an affirmative result.

Taking the smallest needle of the instrument, I introduced it through the eleventh intercostal space, drawing the skin strongly upward so that the opening in it and that in the intercostal space were considerably more than an inch apart. The point selected was about two inches in front of a line let fall from the middle of the axilla. I carried the point of the needle upward and backward. At the depth of an inch and a half I gave a turn to the ratchet, but as no fluid followed the movement the point was advanced slowly half an inch further, and immediately the vacuum in the instrument was filled with pus. Exhausting still further, about nine ounces of light-yellow, creamy-looking pus were obtained before the flow ceased. It was devoid of any marked odor. A vacuum was kept up for a few minutes, and then the needle was withdrawn. As in the other cases, there was no bleeding.

The following morning Dr. J. C. Davis (who has written a remarkable paper on abscess of the liver,* and whom I had invited to be present at the operation, but who did not receive my note in time) saw the patient with me. There had been no untoward symptoms, and the night, for the

* Dr. Davis' paper will appear in the forthcoming number (June) of the *New York Medical Journal*. I regret very much not having heard this monograph read (County Medical Society, February meeting), but the author has been kind enough to give me some of the more important points, to which reference will presently be made.

first time in several weeks, had been passed in sleep. Since then the patient has continued to improve, and proposes to return home on the 17th. As regards the hypochondrical symptoms, the change has been marked, and there is little doubt that complete recovery will result.

The following note from Dr. Alden relates to the chemical and microscopical examination of the pus:

34 WEST 32D ST., WEDNESDAY
MORNING, May 15th.

DEAR DOCTOR :

The material obtained by aspiration from Mr. S.'s liver, on Friday last, proved to be highly albuminous, as you expected. The nitric acid test for biliverdin gave a faint reaction, but Pettenkofer's test for the biliary acids did not show their presence. My own microscope is locked up, and the friend on whom I called was out, so it was several days before I examined the fluid in that way. When I did I found nothing that I could recognize as liver tissue. I noticed that putrefactive changes set in very quickly, and these may have affected the results.

Pardon my delay in writing to you.

Very respectfully yours,

C. H. ALDEN.

DR. W. A. HAMMOND,

43 West 54th Street.

In all the other cases the microscope, when employed sufficiently early, showed the presence of a large quantity of broken-down liver tissue, and in one, that of Mr. C., a great deal of pigment.*

* In a paper entitled "A Contribution to the Nature and Consequences of Malarial Poisoning," *St. Louis Clinical Record*, Sept. 1877, I alluded to this case when I said:

"I may here state that, having had recent occasion to evacuate, in one of my patients, two hepatic abscesses, I found in the pus of each numerous masses of pigment granules. The patient, a gentleman from West Virginia, had suffered from repeated attacks of malarial diseases. At some future time I may give the particulars of his and other like cases to the readers of the *St. Louis Clinical Record*."

I must state here, that in one other case, that of a gentleman from Illinois, presenting analogous symptoms, conjoined with irregular action of the heart and a sense of suffocation on taking very slight bodily exercise, aspiration, instead of discovering the existence of an abscess, led to the evacuation of over a pint of water from a hydatid cyst, numerous hooklets and other parts of echinococci. In this case fluctuation was very evident, and there was slight enlargement, but no tenderness.

In another case, also from Illinois, which was characterized by sallow complexion, yellow conjunctivæ, insomnia, pain in the head, gastric and intestinal derangement, and profound hypochondria, and in which I suspected hepatic abscess, aspiration led to negative results.

The points which are, I think, established by the foregoing cases, are :

1. That hepatic abscesses are probably much more common with us than is generally supposed.
2. That they may exist without any local symptoms or such general disturbance of the system as is commonly regarded as indicating their presence.
3. That they may be associated with hypochondria and other evidences of cerebral disturbance.
4. That they should be opened at the earliest possible moment and without waiting for adhesions to form between the liver and the abdominal wall.
5. That the proper place for performing the operation of aspiration is in one of the intercostal spaces. This point is strongly insisted upon by Dr. Davis in his memoir.
6. That the operation by aspiration is free from danger. Dr. Davis never saw any ill consequences from it, and Dr. Jimenez,* of Mexico, states that of the hundreds of times

* Clinica Medica : Appendice a las Lecciones sobre los Abscésos del Hígado, Mexico, 1866, p. 4.

he has punctured the liver through the intercostal spaces for abscess, he has never once seen the operation followed by peritonitis.

In a very admirable paper Dr. Tauszky,* of New York, expresses a like opinion.

7. That in all cases of hypochondria or melancholia, the region of the liver should be carefully explored, and that even if no fluctuation be detected or any other sign of abscess be discovered, aspiration, being a harmless operation, should be performed.

8. That if pus be evacuated, the operation may be expected to be followed by a cure of the mental disorder as well as by the preservation of the life of the patient from the probably fatal consequences of hepatic abscess.

9. That if no abscess be found the patient will, at least, be no worse off than he was before.

Relative to the third of these propositions, I trust the Society will excuse me if I briefly call to mind the present state of our knowledge relative to the nervous connection existing between the liver and the brain. The association of liver disease or disorder with depression of spirits or hypochondria, is certainly no new thing to English-speaking people. But until recently the only connection known to exist between the brain and the liver was through the pneumogastric or the sympathetic nerve and the spinal cord. The researches of Cyon and Aladoff have, however, shown, as cited by Fothergill,† "that the vaso-motor nerves of the liver actually run down the vertebral arteries through the lower cervical ganglia, after which they form the annulus of Vieussens and then pass on to the first dor-

* Some remarks regarding "Abscess of the Liver Opened Artificially through the Abdominal Wall, followed by Complete Recovery," *Medical Record*, April 20, 1878.

† West Riding Lunatic Asylum Medical Reports, vol. iv, 1874, p. 138.

sal ganglion, and thence through the gangliated cord of the sympathetic, the splanchnics, to the cæliac ganglion, and along the hepatic vessels to the liver."

In regard to the consequences of this intimate relation, Dr. Fothergill * says: "Here we see that there is a direct anatomical association betwixt the nerves of the liver and those of the vertebral arteries; and from this we can comprehend the condition of melancholia existing in the derangement of the liver without the intellect being affected; for if a nerve track has been traced in one direction, the coexistence of another track passing in the opposite direction is not very conjectural, and will doubtless be found when equally carefully sought after. The portion of the brain which is supplied by the vertebral arteries, and consequently affected by vaso-motor disturbances of the nerve-supply of these vessels is, according to Schræder van der Kolk and Laycock, the portion in which are located the emotions. We are familiar with emotional disturbance, or melancholia, in other abdominal affections than those of the liver merely; it coexists with fæcal accumulations in the colon, with Addison's disease, with uterine displacements and with peripheral irritation in the reproductive system. It appears highly probable that there are other than hepatic fibrils in the vertebral vaso-motor nerves, and that it is by such mechanism that this emotional disturbance is brought about."

But though it is not to be disputed that liver disease, abscess included, will produce hypochondria, and other emotional disturbance, I am convinced that there are points of importance connected with the subject, of far greater interest than this. What, for instance, is the cause of the abscess of the liver in these cases? Perhaps embolism,

* Op. et loc. cit.

perhaps a slight pyæmia, certainly not dysentery, or other endemic causes. I am inclined to think that they are due to the brain disturbance in the first instance, and that by their influence the cerebral symptoms are altered and intensified.

And this is no mere hypothesis. The special point is certainly new, but there are many instances of analogous effects as regards other organs of the body, when the nervous connections between them and the brain have been interfered with, or where there has been disease of this latter organ. Thus:

Hyrtl* calls attention to the fact that irritation of the corpus callosum, the fornix, and the floor of the third ventricle, induces a copious flow of bile with bilious vomiting and purging.

The experiments of Claude Bernard relative to the association of irritation of the floor of the fourth ventricle with diabetes are to the same effect.

Pincus,† according to Schiff, has seen congestions, black and irregular spots, and hemorrhages, produced in the mucous membrane of the stomach of rabbits by section of the subdiaphragmatic branches of the pneumogastric nerves.

Vulpian,‡ in speaking of the erosions, hemorrhages, and other disorganizations of the gastric mucous membrane, produced in animals by lesions of the crura cerebri, corpora striata, and optic thalami, calls attention to the fact that like changes are caused in the stomach of man by cerebral hemorrhages, and says:

“M. Charcot and I have observed these ecchymotic lesions in the stomach in cases of *ramollissement* and even

* Handbuch der Topographischen Anatomie Fuenfte Auflage Ersten Band. Wien, 1865, p. 710.

† Leçons sur la physiologie de la digestion, t. ii, p. 433.

‡ Leçons sur l'appareil vaso-moteur, Paris, 1875, t. i, p. 451.

in cases of arterial ischæmia where *ramollissement* has not yet been produced. I have found them twenty-four hours after the obliteration of the middle cerebral artery. The patient has lost consciousness and has died without reviving. At the autopsy, although there was no cerebral softening, numerous ecchymotic spots were found in the stomach."

It is well known, also, that congestion and inflammation of the lungs may be the direct result of cerebral hemorrhage, and that the mal-nutrition of the skin leading to the production of ulceration, is sometimes a consequence of a like cause. There are, also, many other examples that might be adduced going to show the influence of lesions or disease of nerve centres over the nutrition of distant organs. There are, therefore, strong physiological and pathological reasons for ascribing these hepatic abscesses to the direct influence of brain diseases, especially hyperæmia, by which the nutrition of the liver is impaired and destruction of a certain portion of its tissue effected. That they are invariably attendant upon such a condition is not to be asserted. Doubtless there are pathognomonic signs of their presence which only further experience can discover. At present we move in the dark, or at least in a very obscure atmosphere. But in the harmlessness of the operation necessary for their cure we have a factor which cannot but aid in our further enlightenment.

PART II.

Since the foregoing paper was published I have acquired much additional information and experience relative to hepatic abscesses. Soon after it was read before the Neurological Society, I received the following interesting letter from Dr. J. C. Shaw, then the President, and now Super-

intendent of the Kings County Lunatic Asylum, at Flatbush, which has an important bearing on the subject in several of its relations.

184 REMSEN ST., BROOKLYN.

June 16, 1878.

MY DEAR DOCTOR: Yesterday I had the good fortune to make a *post-mortem* examination for the coroner, and which will, perhaps, be of some interest to you.

A Mr. R—, 70 years old, a native of Maine, but in the habit of travelling about and having no fixed residence for more than five months at a time, for the past five months has been in Washington. During that time frequently consulted Dr. Johnson, of that city, who believed him to have some malarial difficulty and enlargement of the liver. He came to Brooklyn on a visit five weeks ago. During this time he has been confined to his bedroom, having general debility, nausea, hiccough, etc. Refused to see a physician, having expressed a dislike to the profession, but was under the care of a female electrician. Suddenly one day he was seized with what his wife supposed to be paralysis, twitching of the muscles about the face, semi-comatose condition, apparently unable to speak and to swallow, and in four hours died.

I made the *post-mortem* for the coroner. Brain: generalized pachymeningitis; a good deal of fluid in the ventricles and subial space; otherwise nothing abnormal.

Chest, nothing special.

Kidneys degenerated.

Right lobe of liver *very much* enlarged. There was a small

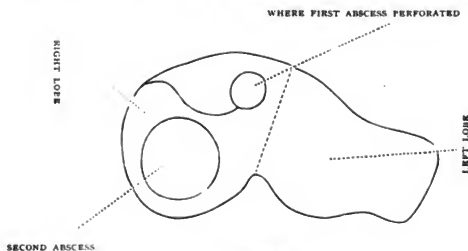


FIGURE 1.

dark spot on the anterior surface of the right lobe. The tissue normal. This was soft and flabby. I immediately saw that it was an abscess. The abscess had perforated at the black spot (see Fig. 1), and about three ounces of pus were discharged into the peritoneal cavity, and death resulted from shock. This abscess extended backward pretty deeply into the cavity of the liver, and contained about eight ounces of creamy-looking pus without odor.

But I found another one lower down, which contained about twelve ounces of greenish-looking pus without odor (see Fig. 1). The outlines show the position of the abscess. The walls of both abscesses inside had septa of liver tissue projecting into the cavity somewhat after this style.

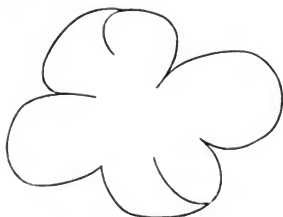


FIGURE 2.

You will see from the first diagram that the wall between the two abscesses is comparatively thin.

Now it appears to me that this is a very interesting case in view of the papers on abscess of the liver by Dr. Davis and yourself, and if aspiration had been performed in this case in the spaces indicated by Dr. Davis and yourself, there is not the least doubt that the larger abscess would surely have been struck. The wall on the posterior surface was much thinner than it was on the anterior, and if the needle had been carried a little downward, it would positively have entered the abscess cavity. The smaller abscess might possibly have been struck, but it was more on the anterior surface of the liver, and there was a great deal of liver tissue posterior to it, and it would, perhaps, less likely have been reached.

This man does not appear to have been a hypochondriac, but I will relate what was told me before the *post-mortem* was made.

He was stopping in the house of his brother-in-law, so that the history is reliable.

For several years past, this gentleman had been a firm believer in spiritualism, and he had constantly tried to convert every one of his relatives and friends to his peculiar views on this subject, and when he was unable to do so, he would become quite excited and almost violent. He had so persistently done this, and in such an obnoxious way, that he was detested by all his relatives and every one who knew him, and they did not hesitate to say that they were glad he was dead.

Was this mental condition brought about by changes in the liver? He was in the habit of stating that he saw spirits all around him. I remain

Yours very truly,

J. C. SHAW.

Nothing could be more conclusive in relation to the subject of this paper than this letter of Dr. Shaw. It is especially valuable as regards the facts of the relation between mental derangement and hepatic abscess, the proper point at which the opening into the abscess should be made and that the existence of abscess was not suspected during life.

The former paper (the first part of the present communication) contained the details of five cases in which aspiration led to the successful removal of pus from the liver. In the present paper I have to record ten additional cases, as follows:

1. Mrs. Y., of Maine, had been insane and in a lunatic asylum; consulted me December 16, 1878, for symptoms indicative of recurring mental derangement.

On examination, found no evidence of enlargement of the liver or of fluctuation, and determined not to perform an operation. Medical treatment tending to no very decided result, I made another examination and thought I detected obscure fluctuation.

On the 28th, I operated by aspiration in the ninth intercostal space and evacuated four ounces of pus.

There were no untoward results, and on January 30th she returned home, to all appearance well.

Several months afterward the mental symptoms reappeared, and she was again placed in an asylum where she now is.

2. Mr. B. had been a patient of mine for several years, for well-marked hypochondria. He was exceedingly depressed in spirits and constantly fancying himself the subject of abdominal diseases of various kinds. He slept very badly, and was subject to headache, vertigo and distressing noises in his ears; these latter, sometimes simulating voices uttering words of command or of warning. Another important phenomenon was the uncontrollable tendency to repeat some words which had caught his ears during the day. Thus, going down Broadway one morning, he heard a stage-driver swearing at his horses, and the expressions were at once caught up by him and repeated aloud all that day, so that, as his wife said, she was sure he said, "Damn you, what do you mean," at least a thousand times.

He improved and relapsed several times during the five years that he was at intervals under my charge, till about April 1, 1879, he consulted me again.

In the meantime I had had my attention directed to abscess of the liver as an accompaniment, if not a result of cerebral derangement, and on examining him I detected unequivocal evidence of fluid, although there was not the slightest apparent enlargement of the liver.

He consented to an operation, and on April 21st, assisted by Dr. W. J. Morton and my son, Dr. Græme M. Hammond, I aspirated the liver in the ninth intercostal space, Dr. Morton administering ether to the extent of producing decided but not profound anæsthesia. At the depth of one and three-quarter inches pus began to flow, and eight and a quarter ounces were evacuated.

There were no unpleasant symptoms; the recovery of the patient was rapid, and since that time he has remained perfectly well.

At the time of the operation he was greatly emaciated, weighing only 128 pounds, though over five feet nine inches in height. During the first week subsequently he gained 11 pounds, and is now sufficiently stout, weighing probably 150 pounds.

3. In regard to this case I cannot do better than to transmit the account of it read to the Medical Society of Virginia, at its meeting October 21, 1879, by Dr. J. Marion Sims, who kindly assisted in the operation and administered chloroform to the patient.

After giving some account of my previous operations,* Dr. Sims continued :

" Now, Mr. President, I come to speak of a case in which we all feel not only a scientific but a deep personal interest. A gentleman, well known to most of you personally, and to all of you by reputation, engaged in the arduous duties of a journalist, and professor in a medical college, having been all his life in a malarious region, was suddenly stricken with fever in August, 1878. Up to this time he had enjoyed, apparently, good health, but had been much overworked. The fever was of a remittent type, with a tendency to congestion of the brain, but it did not yield to the remedies, and at the end of four weeks he was taken from his home to a mountain region. Here he gradually

* In this account Dr. Sims fell into an error. He states that one of the patients had the operation repeated by a physician in the south of France, and that pus was again evacuated. The physician, Dr. C. Velasco, of Nice, wrote to me that he had detected fluctuation in the patient's liver, and asking for an account of the operation I had performed on him. I sent him a copy of my paper containing a full report of the case. But it appears he was mistaken, as there was apparently no return, and no second operation was performed. I wrote a correction of this error, and gave it to Dr. Sims for publication, as soon as I was made aware of his mistake by the appearance of his paper in the *Virginia Medical Monthly*, but he mislaid my letter, and the rectification has not been made till now.

improved, and in November he returned home and began the winter course of lectures. During the second lecture he was taken with convulsions, and was obliged to resign his professorial chair. During the winter he was completely invalided. The prominent symptoms were congestion of the brain, insomnia, and great depression of spirits. In the month of March, 1879, he became anxious concerning his own condition, and looked forward with great despondency to the future.

"In the month of June he went to Staunton, Va., where he remained a month, and was somewhat improved. From there he went to the White Sulphur Springs, in West Virginia, where he remained two months, but was not the least benefited by his travel. He there met many of his old medical friends from this and other parts of the South. Many of them, feeling a great personal interest in him, investigated his case minutely, but were unable to afford him any relief.

"Early in October he came to New York, still complaining of his head, daily paroxysms of fever, complete insomnia, and great depression of spirits. I saw him, and called in one of our most eminent physicians who, after a thorough examination, declared his case to be one of profound malarial poisoning. He advised him to give up his former residence and go to a mountain region where there are no causes of malaria. Not being able to do this, he concluded to remain in New York. A week passed, and he was no better. I then called Dr. William A. Hammond to see him. Judging from the brain symptoms alone, he thought it was a case of abscess of the liver. On examination, his liver was found to be a little enlarged, and by palpation he was enabled to detect fluctuation, and to say positively that there was an abscess in the right lobe of the liver.

"His method of determining this was very simple. He placed the patient on the back, put the points of the index and middle fingers of the left hand between the eighth and ninth ribs, a little in advance of a line falling from the middle of the axilla. Then, by gentle tapping or percussion at a point about two inches above the umbilicus, and a little to the right of the middle line, fluctuation was detected by the fingers of the left hand. I immediately imitated his process, and thought that the motion felt by the left hand was due to the impulse of the liver alone against the ribs. However, I have examined other cases since where the liver was supposed to be healthy, and could not produce a similar sensation to that found in this case. Dr. Hammond's practised touch enabled him to say positively that there was fluctuation in this case, and therefore an abscess.

"On the following day he verified his diagnosis by aspiration, and drew off eight and a half ounces of pus, a specimen of which I now show you. I hope you will appoint some expert to examine and report upon it."*

ALEXANDRIA, VA., Oct. 26, 1879.

DEAR DOCTOR—I am sorry that the microscopic examination of the pus left by Dr. Sims at our late meeting does not furnish anything interesting. It had been so long drawn from the abscess that the corpuscles were broken down by disintegration, and it was difficult to get a view of a perfect one. Besides the debris of pus corpuscles the fluid contained a large number of hepatic cells, imbedded in which were oil globules; but this fact does not prove fatty degeneration of the liver, except that portion of it in contact with the abscess. There was also some blue coloring matter in the pus, which was doubtless derived from what the bottle contained previous to holding the pus, as it was neither indican nor the blue opalescence produced by vibriones; it was probably some ferric salt.

Yours truly,

R. C. POWELL.

P. S. The examination of the pus was made by Dr. J. J. Woodward, of Washington, D. C., with Ross's large compound microscope with a magnifying power of 500 diameters. Very few objects can escape such an instrument as this.

R. C. P.

* This specimen of pus was handed over to Dr. Robert C. Powell, of Alexandria, Va., who promised to have it examined, etc. The following letter was duly received by the Recording Secretary:

"After this operation our patient had a good night's rest, the first for a very long time; and, judging from Dr. Hammond's experience, we have a right to expect that he will be again soon restored to health and usefulness.

"Many of you will be surprised and all of you will feel special interest in the case when I tell you that the subject of this operation was Dr. E. S. Gaillard, lately of Louisville, Kentucky."

In a note, it is further stated by the recording secretary that a letter from Dr. Sims, of December 20, 1879, gives the pleasing information that Dr. Gaillard was then in the enjoyment of good health. Subsequently, however, from over-mental work there were symptoms of a relapse to the cerebral disturbance. Repeated examinations of the liver failed, however, to reveal the existence of fluctuation, and, moreover, the mental and other brain symptoms were not of such a character as to lead me to suppose that another abscess existed, or that the old cavity had re-filled. Nevertheless, in order to satisfy the patient, who had imbibed the idea of another abscess, and whose mind was, in consequence, greatly disturbed thereby, I operated again, somewhat under protest. There was no pus. At the present time (Dec. 5, 1880) he is in excellent physical and mental health.

4. Mr. O. consulted me August 22, 1879. The patient had had repeated attacks of pneumonia and was at the time tuberculous; but the most prominent symptoms were vertigo, insomnia, a sensation of weight or heaviness in the head, and great depression of spirits amounting almost to melancholia. Examination showed the existence of marked fluctuation, though there was no apparent enlargement of the liver.

On the 24th, assisted by my son Dr. G. M. Hammond,

I operated, evacuating seven ounces of a creamy-looking pus without odor.

On the 30th the patient went to his home in western Pennsylvania with complete relief of all his head symptoms.

During the winter he suffered greatly with his lungs, and late in the spring died of phthisis.

In this case there was a probable return of the accumulation of pus in the liver, but I did not see him after he left New York, and there was, unfortunately, no *post-mortem* examination.

5. Mr. M., of Michigan, consulted me July 23, 1879, for a condition which I diagnosticated as cerebral hyperæmia. He visited me daily till the 30th, when I discharged him, to all appearance cured.

On August 19th he again visited me, having in the meantime been at a watering-place, his symptoms having returned.

Under like treatment, as in the first instance (bromide of sodium, ergot and cauterization of the nape of the neck), he improved, and on the 22d was again discharged.

On October 11th he returned in as bad a state as in the beginning, and I then, for the first time, suspected hepatic abscess, as with his other symptoms there was decided hypochondria. On examination, however, I could detect neither fluctuation nor enlargement of the liver.

I determined, however, to operate, and on the 13th proceeded to do so.

An examination led to no definite results, though I thought there was slight fluctuation, but neither Dr. W. J. Morton nor my son could discover it. The patient was placed under ether by Dr. Morton, and on introducing the aspirator needle between the eighth and ninth ribs, as in

other cases, at the depth of one inch and a half, pus began to flow, and seven and a half ounces of odorless, creamy pus escaped.

The symptoms at once ceased and have not since recurred. At the present time the patient is in excellent health. I saw him about a month since, on his return from Europe, when he again consulted me for slight gastric trouble, but none of the old symptoms had recurred.

6. Mrs. J., of North Carolina, was first seen by me November 4, 1879. She was then on the verge of insanity, —was crying and wringing her hands through the influence of the intense melancholy which affected her; was unable to sleep; had pain in her head, dizziness and noises in her ears. She was certain she had committed some heinous sin and was sure she was lost both in this world and that to come.

Repeated examinations convinced me that she was suffering from abscess of the liver. She had had several malarious attacks. There was no direct evidence of abscess, except indistinct fluctuation; not even pain on strong pressure.

On the 11th I aspirated the liver in the usual situation, and at the depth of two inches reached pus. Nine and a half ounces were evacuated. It contained liver tissue, pigment cells and oil globules, and was free from odor.

Mrs. J. at once began to improve, and in less than two weeks left for her home in Charleston entirely restored. She has remained well ever since.

7. Mr. B. consulted me January 19, 1879, for symptoms strongly indicative of a malarial origin. He had had repeated attacks of intermittent fever and had also suffered from dysentery. His body was emaciated, and his general health below the normal standard.

On examination I found enlargement of the spleen and liver, and ascertained that both these organs had been the seat of pain.

His head symptoms were well marked. There were vertigo, pain, insomnia, confusion of ideas at times, inability to concentrate the attention for any considerable period without causing a notable aggravation of the uncomfortable feeling which almost always existed in the head. There was also great mental depression. Suspecting the existence of pigmentary deposits in the brain, I examined the blood with the microscope and discovered numerous granules of black pigment in this fluid. There were, however, no pigmentary deposits in the retina, such as I had found in other cases of malarial poisoning and of hepatic and splenic derangement.

Again examining the liver more thoroughly, I ascertained that strong pressure produced a deep-seated pain in the organ and that distinct fluctuation existed.

On the 21st I operated by aspiration, and gave exit to ten and a-half ounces of a grayish-colored pus free from odor. On microscopical examination this was seen to contain large quantities of pigment and broken-down liver tissue.

There were no outward symptoms, and the patient began to improve from the very first day of the operation. On February 3d he left for his home in Virginia in a fair state of health, but from March 1st to the 6th he was again under my charge for a condition similar to that for which I had first treated him, except that there were no local liver symptoms. There was still pigment in the blood, and my original suspicion of like deposits in the cortex of the brain was revived. Under the use of arsenic and bromide of sodium, amendment was again produced, and he again re-

turned home. I heard at intervals from him for several months. Sometimes he was better and again worse, but as he continued to live in a malarious region I had no expectation of certain recovery.

8. Mr. P., a prominent citizen of Northern Ohio, consulted me November 7, 1879, for inability to sleep, pain in the head, vertigo, persistent and intense mental depression, and an impossibility of exerting the mind without an increase in the cerebral disturbance. I diagnosticated cerebral hyperæmia, and this opinion was confirmed by the ophthalmoscopical examination, and by the fact that the temperature of the head, as shown by Lombard's instrument, was 1.2° Fahrenheit higher than the normal standard. On examining the right hypochondriac region, I could detect no evidence of liver enlargement, or of soreness on pressure, and no fluctuation. I determined, therefore, as there had been no symptoms directly referable to the liver, to treat the case with bromide of sodium, ergot, and counter-irritation to the nape of the neck. These measures were continued till the 19th, when there being no such decided improvement as would have resulted in ordinary cases, I resolved to aspirate the liver.

On the 20th, assisted by Surgeon-General Wales of the Navy, and my son, Dr. G. M. Hammond, I operated. Before doing so, however, Dr. Wales examined the patient very thoroughly, and agreed with me that there were no signs of abscess to be detected. Nevertheless, he concurred in the view that under the circumstances, the operation was a justifiable one, and he was kind enough to administer ether to the patient.

At the depth of an inch and seven-eighths, the cavity of an abscess was reached and pus began to flow. Seven ounces and a-half of a creamy odorless pus were evacuated.

Amendment was immediate and progressive, and in the course of ten days the patient returned to his home and entered upon the discharge of his duties as a member of the Senate of Ohio. Several letters since received from him inform me of the complete and permanent restoration of health.

9. Mr. C., from Northern Pennsylvania, came under my care May 26, 1880, suffering from the ordinary symptoms of cerebral hyperæmia, and, in addition, with severe hemorrhoids. His cerebral disorder was often relieved by extensive hemorrhages from the rectum, but these had lately become so frequent as to reduce him to an extreme point. He had also had repeated attacks of diarrhœa alternating with long periods of obstinate constipation.

In this case there were found on examination very obvious symptoms of liver abscess, pain on pressure over the region of the liver, enlargement and fluctuation. On the 28th, assisted by Dr. G. M. Hammond, I operated through the ninth intercostal space, and gave exit to eleven ounces of creamy-looking and odorless pus.

Mr. C. began at once to improve in every respect, and at the end of a month was free from hemorrhoids; had had no hemorrhage from the bowels, and was, moreover, entirely relieved of his head symptoms.

10. Mr. N., of Northern Alabama, consulted me March 12, 1880, for a condition which I diagnosticated as cerebral hyperæmia. Among his prominent symptoms were insomnia, pain in the head, vertigo, depression of spirits, a decided tendency to hypochondria, and "nervous dyspepsia." He had suffered in this way for over a year, with scarcely any mitigation of his symptoms.

I treated him with bromide of sodium, pepsine, charcoal,

and attention to his diet, and on April 1st he returned home apparently cured. I expressed the opinion to him and to his friend and mine, the Right Reverend Bishop of Tennessee, that he would remain cured unless there was an abscess of the liver. Repeated examinations had failed to disclose the slightest local symptoms of liver disease, and I did not believe such condition existed. I several times thought of making an exploratory puncture, but he continued to improve so systematically that I was convinced there was no such trouble.

However, on August 8, 1880, he returned in almost as bad a condition as when I first saw him, and I then determined, although there were still no local signs, to aspirate the liver.

Accordingly, on the 13th, after he had been thoroughly examined by Prof. W. H. Polk, M. D., who, however, detected no sign of pus in the liver beyond the sensation of fluctuation, the import of which he doubted, I operated by aspiration in the usual place, Prof. Polk administering ether to the patient, and Bishop Quintard, of Tennessee, being present. The latter has the degree of M. D., and was at one time a professor in a medical college. At the depth of an inch and a half pus began to flow, and seven and three-quarter ounces were evacuated, to the great astonishment of the gentlemen present, both of whom, I think I may say with truth, were confident that I was mistaken in my diagnosis.

The patient began to amend, and in a few days went to Saratoga.

On the 21st he wrote me that the water was benefiting him very much, and that he was sleeping well. On the 24th he went home, without stopping to see me in New York, but a letter received from him since his return, dated Sep-

tember 29th, informs me that he is no better than before the operation.

In this case, though the operation appears not to have been followed by any notable improvement in the health of the patient, it is very evident that its performance probably saved his life, and I attribute much of his continued ill health to his disregard of my instructions, in hurrying home to his business before he was in fit condition to attend to work of any severe kind such as his is.

In all I have aspirated the liver successfully for abscess fifteen times.

In one case there was a hydatid cyst. In twenty-seven cases there was neither pus nor any other fluid evacuated: making a total of forty-three cases.

In no case was the operation followed by the slightest untoward result.

In no case had adhesions formed between the surface of the liver and the abdominal wall.

Cases of importance in connection with those I have reported have occurred to other physicians.

Thus Dr. J. Marion Sims operated by aspiration on a lady in whom certainly the existence of abscess of the liver would not ordinarily have been suspected. I examined her very thoroughly, and the sensation of fluctuation, as generally described, was not present, neither was there any enlargement of the liver, nor adhesions. The operation was performed by Dr. Sims through the ninth intercostal space, in my presence and that of several other physicians, and about half a pint of pus was evacuated. Within ten days afterward the patient died, and on *post-mortem* examination a cancerous mass was found involving the duodenum and left lobe of the liver, and the abscess cavity, contracted to the dimensions of a walnut, was found situated in the right lobe.

Dr. C. C. Lee operated in like manner on a woman, a patient of the New York State Women's Hospital, and evacuated a large abscess. No adhesions had been formed between the liver and abdominal wall. The patient subsequently died.

Both these cases appear to have been abscesses of a different character from those which have come under my observation, and were probably of idiopathic or cachectic origin, and not the result of cerebral disturbance.

But a case has been reported by Dr. W. H. De Witt,* of Cincinnati, which is in the highest degree confirmatory of some of the points insisted upon in this paper, and which I cite in full.

"The following case will illustrate the close relation or intimacy existing between the brain and liver, as recently pointed out by Dr. Hammond, of New York City.

"On October 18, 1879, I was first called to see Mr. H., carpenter by occupation; until quite recently has enjoyed very good health, with the exception of an occasional *malarial attack*. For more than twelve (12) years has been a periodical drinker. During his sprees, which occurred about every six weeks, he would drink an enormous amount of poor whisky and beer, usually mixing the two drinks.

"Upon entering his room I found him lying upon his back with both hands firmly applied to the head. I at once asked him what motive he had in thus compressing the parts, and in response he informed me that for several consecutive days and nights he had suffered from the most excruciating headache, and that the pressure seemed to afford some relief.

"In further conversation, I very soon detected that his

*"Hyperæmia of the Brain Associated with Hepatic Abscess." By W. H. De Witt, M.D., Lecturer on Diseases of the Mind in the Miami Medical College of Cincinnati, late Resident Physician to the Cincinnati Hospital for the Insane, etc. *Medical Gazette*, April 3, 1880.

mental faculties were very obtuse. For a few moments, perhaps, he would converse quite intelligibly, but would then wander off on some other subject entirely foreign. His mental condition was such that I could not possibly get a connected or reliable history of his case. Consequently, I was forced to rely mainly upon his wife's statements, she being quite an intelligent woman. She informed me that for more than a week past he had suffered more or less from headache, and that recently it had grown more severe. On the day previous she first noticed his mental instability; thought little of it; supposed it due to the pain. She also stated that for six consecutive days, at about the same hour of the day, he had a well-pronounced chill, lasting several minutes, followed in each instance by fever. At no time had he complained of pain in the right side. These, with several minor statements, were all that could be elicited.

"A careful examination of the body gave negative results. There was no enlargement or tenderness in right hypochondriac region—certainly no pain. After weighing all the symptoms, I concluded that I had a clear case of malarial fever to deal with. My diagnosis was largely strengthened by the fact that he had within a few weeks past been treated for ague. It did not occur to me at the time that there was obscure and deep-seated abscess of the liver. In fact, this was not dreamed of. I ordered him, as customary each day, about five hours before the expected chill, twelve (12) grains of quinine in solution. This was continued for three days without any improvement in symptoms. The quantity was then increased to fifteen grains. Still he continued to have chills, notwithstanding the large amount of quinine taken. I was pretty well satisfied in my own mind at this juncture of the case that

there was some latent or obscure cause. Hoping to discover the same, I again examined carefully every portion of the body, but with the same negative results as in the former examination. On the succeeding day (November 19) at my morning visit the wife informed me that he had been very restless during a greater part of the night, and that his bowels had moved several times, and, as she thought, chiefly consisting of blood. I found on examination, as she had very wisely taken the precaution to preserve the stools, that they consisted very largely of pus and blood, the former being largely in excess. This of course settled the mystery at once, explained the cause of chills, and failure of quinine to arrest them. On the following day the patient was taken to the hospital. I saw nothing more of him until recently he called at my office, apparently a well man. This case clearly illustrates the facts set forth by Dr. Hammond, that there may exist either single or multiple abscess of the liver without any symptoms other than those pointed out in this case."

Here I leave the subject for the present, trusting that it will not be found devoid of interest in its practical as well as scientific relations. The connection existing between the liver and brain, as exemplified in the occasional occurrence of abscess of the former organ as the consequence of wounds or injuries of the latter, has long been known. The subject as considered in the present paper is, so far as that point is concerned, a contribution in the same direction of interdependence. But the others,—that abscess may exist without revealing itself by the ordinary signs, that the puncture should take place before adhesions are formed, and that the proper place to operate is in one of the right intercostal spaces, are, I think, of equal importance.

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